VPDES PERMIT FACT SHEET

This document gives the pertinent information concerning the **reissuance** of the VPDES permit listed below. This permit is being processed as a **minor municipal** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq. The discharge results from the operation of a **0.015 MGD intermittent sand filter system**. This permit action consists of revising the special conditions. (SIC Code: 4952)

1. **Facility Name and Address:**
   Morris Hill STP
   PO Box 432
   Covington, VA 24426-0432
   Location: Coles Mountain Road (SR 605), South of Gathright Dam

2. **Permit No: VA0032115** Existing Permit Expiration Date: September 19, 2009

3. **Owner/ Facility Contact:**
   William C. Siple, Facility Operator (540) 962-1138

4. **Application Complete Date:** January 30, 2009
   Permit Drafted By: Becky L. France, Environmental Engineer Senior
   Date: March 31, 2009 (Revised 4/10/09, 4/20/09, 4/29/09)
   DEQ Regional Office: Blue Ridge Regional Office
   Reviewed By: Kip D. Foster, Water Permit Manager
   Reviewer's Signature: _____ Date: 5-7-09
   Public Comment Period Dates: From 5/2/09 To 5/31/09

5. **Receiving Stream Classification:**

Receiving Stream:	Jackson River (River Mile: 43.55)		
Watershed ID:	VAW-I04R		
River Basin:	James River, Upper		
River Subbasin:	NA		
Section:	12		
Class:	VI		
Special Standards:	None		
7-Day, 10-Year Low Flow:	91.9 MGD	7-Day, 10-Year High Flow:	89.1 MGD
1-Day, 10-Year Low Flow:	91.9 MGD	1-Day, 10-Year High Flow:	90.4 MGD
30-Day, 10-Year Low Flow:	91.0 MGD	30-Day, 10 Year High Flow:	85.8 MGD
30-Day, 5-Year Low Flow:	90.0 MGD	Harmonic Mean Flow:	70.8 MGD
Tidal:	No	303(d) Listed:	No

Attachment A contains a copy of the flow frequency determination memorandum.

6. **Operator License Requirements:** None

7. **Reliability Class:** II

8. **Permit Characterization:**

( ) Private ( ) Interim Limits in Other Document
(X) Federal ( ) Possible Interstate Effect
( ) State
( ) POTW
( ) PVOTW

9. **Wastewater Treatment System:** A description of the wastewater treatment system is provided below. See **Attachment B** for the wastewater treatment schematics and **Attachment C** for a copy of the site inspection report. Treatment units associated with the discharge are listed in the table below.

Table I
DISCHARGE DESCRIPTION

Outfall Number	Discharge Source	Treatment (Unit by Unit)	Flow (Design) (MGD)
001	Morris Hill STP	septic tank dosing tank flow distribution box sand filters (3) tablet chlorinator chlorine contact tank cascade aeration	0.015

The Morris Hill STP treats domestic sewage form the Morris Hill Campground and the Gathright Dam and Lake Moomaw Offices/Visitor's Center. The campground is open from Memorial Day through Labor Day and the visitor's center is open year round. The 0.015 MGD sewage treatment works consists of a septic tank, sand filter, and tablet chlorinator system.

Wastewater from the restrooms is collected and routed into a 20,000-gallon septic tank. Supernatant from the tank flows by way of a 3700-gallon dosing tank to a sand filter. Once the dosing tank reaches capacity, the wastewater automatically discharges to a distribution box. The flow from the distribution box is routed to one of the two sand filters in operation. Due to the low flows, only one of the filters is used at any given time.

Sand filter underflow is routed to a dosing tank. Wastewater from the dosing chamber is routed through a Sanuril tablet chlorinator into a baffled chlorine contact tank. Chlorinated effluent flows through a weir/sample box and flows through a pipe down the mountain to the Jackson River.

10. **Sewage Sludge Use or Disposal:** No biosolids are generated by the facility as defined in 12 VAC 5-585-10 et seq. Septage from the septic tank is hauled to POTW as needed.

11. **Discharge Location Description:** A USGS topographic map which indicates the discharge location, any significant dischargers, any water intakes, and other items of interest is included in **Attachment D**. The latitude and longitude of the discharge is N 37°56'54", E 79°56'57".

Name of Topo: Falling Spring Number: 159B

12. **Material Storage:** Calcium hypochlorite tablets are stored inside in a watertight container.

13. **Ambient Water Quality Information:** Memoranda or other information which helped to develop permit conditions (special water quality studies, STORET data, and any other biological and/or chemical data, etc.) are listed below.

Morris Hill STP discharges into the Jackson River just below Gathright Dam. This segment of the Jackson River is flow regulated by the discharge from the dam. Critical stream flow determinations were based on the continuous record gauge on the Jackson River near Falling Spring, Virginia (#02012500) from 1925 to 1979 and the minimum flow requirements from Gathright Dam to maintain the flow of 158 cfs at Covington. The Falling Spring gauge is located approximately 8 miles downstream of the discharge. Measurements from this station were taken prior to flow regulation at Gathright Dam in December of 1979. These measurements were used to estimate the flow associated with the drainage area. Given the drainage area between Covington and Gathright Dam, the associated flow contributed from this drainage area was estimated using the drainage area proportions from the flow measurements at Falling Spring gauge. The estimated flows and Morris Hill WWTP design flow were then subtracted from 158 cfs to determine the flow frequencies above the treatment plant.

STORET Station 2-JKS030.65 is the nearest ambient water quality monitoring station, and it is located nearly 13 miles below the discharge. The 90th percentile temperature and pH values used in the antidegradation wasteload allocation spreadsheet were determined from STORET station data below the surface between 2000 and 2009. Average hardness was determined from STORET station data between 2000 and 2003.

Morris Hill STP discharges into the Jackson River/Falling Spring Creek Watershed (VAW-I04R) as described in the 2004 Use Attainment Assessment Report (**Attachment E**). This segment continues to fully support the aquatic life, wildlife, and recreation uses as described in the 2008 Integrated Report.

14. **Antidegradation Review and Comments:** Tier I _____ Tier II __X___ Tier III _____.

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier I or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier II water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier II waters is not allowed without an evaluation of the economic and social impacts. Tier III water bodies

are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.
The antidegradation review begins with Tier determination. The Jackson River is not listed as a public water supply in the segment where the discharge is located. The Jackson River in this segment (VAW-I04R) is not listed on Part I of the 303(d) list for exceedance of water quality criteria. Available pollutant data have been analyzed, and the existing water quality condition for pollutants for which data exist compared to the water quality standards. This analysis indicates the water quality of the receiving stream does not exceed numeric criteria for any pollutant analyzed. In addition, natural trout waters are assumed to be Tier II unless information is available to indicate otherwise. Therefore, this segment of the Jackson River is classified as a Tier II water, and no significant degradation of existing quality is allowed.

For purposes of aquatic life protection in Tier II waters, "significant degradation" means that no more than 25 percent of the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, "significant degradation" means that no more than 10 percent of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The antidegradation baselines for aquatic life and human health are calculated for each pollutant as follows:

Antidegradation baseline (aquatic life) = 0.25 (WQS – existing quality) + existing quality

Antidegradation baseline (human health) = 0.10 (WQS – existing quality) + existing quality

Where:
"WQS" = Numeric criterion listed in 9 VAC 25-260-00 et seq. for the parameter analyzed
"Existing quality" = Concentration of the parameter being analyzed in the receiving stream

When applied, these "antidegradation baselines" become the new water quality criteria in Tier II waters, and effluent limits must be written to maintain the antidegradation baselines for each pollutant. Antidegradation baselines have been calculated as described above and included in **Attachment F.**

Antidegradation guidelines are applicable and have been applied to this permit reissuance. Water quality based effluent limits for total residual chlorine (TRC) have been established in compliance with antidegradation requirements set forth in 9 VAC 25-260-30 of the water quality standards regulations. In accordance with antidegradation policy, pH will be maintained within the range of 6.0 S.U. and 9.0 S.U. The antidegradation review was conducted as described in Guidance Memorandum 00-2011, and complies with the antidegradation policy contained in Virginia's Water Quality Standards.

15. **Site Inspection:** Date: 3/20/09 Performed by: Becky L. France
Attachment C contains a copy of the site inspection memorandum.

16. **Effluent Screening and Limitation Development:** DEQ Guidance Memorandum 00-2011 was used in developing all water quality based limits pursuant to water quality standards (9 VAC 25-

260-5 et seq.). Refer to **Attachment F** for the antidegradation wasteload allocation spreadsheet and effluent limit calculations. See **Table II** on page 12 for a summary of limits and monitoring requirements.

A. **Mixing Zone**

Effluent is discharged into the Jackson River below Gathright Dam. The Agency mixing zone program, MIXER, was run to determine the percentage of the receiving stream flow that can be used in the antidegradation wasteload allocation calculations. The program indicated that 10.47 percent of the 1Q10 and 100 percent of the 7Q10 may be used for calculating the acute and chronic antidegradation wasteload allocations (AWLAs). A copy of the printout from the MIXER run is included in **Attachment F**.

B. **Effluent Limitations for Conventional Pollutants**

Flow -- The permitted design flow of 0.015 MGD for this facility is taken from the previous permit and the application for the reissuance. In accordance with the VPDES Permit Manual, flow is to be estimated and reported each discharge day.

pH -- The pH limits of 6.0 S.U. minimum and 9.0 S.U. maximum have been continued from the previous permit. These limits are based upon the water quality criteria in 9 VAC 25-260-50 for Class VI receiving waters and are in accordance with federal technology-based guidelines, 40 CFR Part 133, for secondary treatment. The VPDES Permit Manual recommends a monitoring frequency of 1/day for this parameter. The permittee does not add chemicals during the treatment process. The facility discharges infrequently during the winter months. Discharge may occur at night when the facility is not staffed, so pH monitoring may not be feasible when the facility discharges at night. The permittee does not add chemicals during the treatment process. During the permit term, the pH ranged from 6.5 S.U. to 7.3 S.U. Only one of the pH data points was within 0.5 S.U. of the permit limit. Given the nature of the intermittent discharge and the simplicity of the treatment process, a monitoring frequency of 1/discharge-week has been continued from the previous permit.

Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS) -- BOD_5 and TSS are technology-based requirements for municipal dischargers with secondary treatment required in accordance with 40 CFR Part 133. The instream dissolved oxygen criteria should be met with technology-based effluent limitations. The Water Quality Management Plan for the Upper James-Jackson Subarea requires a maximum monthly average loading allocation of 1.70 kg/d for BOD_5. Due to the high level of dilution available in the receiving stream, the discharge is unlikely to have a significant impact on the instream dissolved oxygen concentration. BOD_5 and total suspended solids (TSS) limits of 30 mg/L (1700 g/d) monthly average and 45 mg/L (2500 g/d) weekly average have been included in the permit. The BOD_5 limits are the same as the previous permit term. The TSS concentration limits are the same as the previous permit term but the

loading limits have been adjusted to correct typographical errors in the previous permit. These new corrected TSS loading limits are lower than the previous permit.

Grab samples shall be collected. The VPDES Permit Manual recommends a monitoring frequency of 1/month for these parameters. However, the facility qualifies for a reduced monitoring frequency of 1/ 6 months. See **Attachment G** for a summary of the monitoring data and reduced monitoring frequency criteria.

Dissolved Oxygen (DO) -- The daily minimum DO limit of 6.5 mg/L has been continued from the previous permit. The receiving stream is classifed as a natural trout water which has a minimum dissolved oxygen criteria of 6.0 mg/L. Given the high level of dilution, a DO limit of 6.5 mg/L appears protective of the dissolved oxygen in the receiving stream. Grab samples shall be collected. The VPDES Permit Manual recommends a monitoring frequency of 1/day for this parameter. However, the facility qualifies for a reduced monitoring frequency of 1/ discharge-week. This monitoring frequency is being continued from the previous permit term. See **Attachment G** for a summary of the monitoring data and reduced monitoring frequency criteria.

C. **Effluent Limitations for Toxic Pollutants**

Ammonia as N -- The need for an ammonia limit has been reevaluated using revised water quality criteria and flows. The acute water quality criteria and wasteload allocations were calculated and are included in the spreadsheet in **Attachment F**. Since the facility discharges intermittently, only the acute wasteload allocation was input into the Agency's STATS program to determine if a limit is needed. As recommended in Guidance Memorandum 00-2011, a default ammonia concentration of 9 mg/L was input into the program. The program output indicates that a permit limit is not necessary for ammonia **(Attachment F)**.

Total Residual Chlorine (TRC) -- As noted in Guidance Memorandum 00-2011, all chlorinated effluent must have a chlorine limit because there is a reasonable potential for the facility to cause or contribute to a violation of the standards. This Guidance Memorandum also recommends an upper, technology based wasteload allocation of 4.0 mg/L where the chlorine limit, based solely on dilution, would be excessive. The effluent limits are technology based limits. The previous permit limits of 2.0 mg/L monthly average and 2.4 mg/L maximum weekly average have been continued. The limits were calculated by entering acute and chronic WLAs of 4.0 mg/L into the STATS program. The program used 4.0 mg/L wasteload allocations as the 97th percentile distribution that must be attained. Monitoring shall be continued once per discharge day using grab samples.

17. **Basis for Sludge Use and Disposal Requirements:** Since the facility proposes to pump and haul septage to a POTW, there are no sludge limits or monitoring requirements.

18. **Antibacksliding Statement:** Since there are no limitations less stringent than the previous permit, the permit limits comply with the antibacksliding requirements of 9 VAC 25-31-220 L of the VPDES Permit Regulation.

19. **Compliance Schedules:** There are no compliance schedules included in this permit.

20. **Special Conditions:** A brief rationale for each special condition contained in the permit is given below.

A. **Additional Total Residual Chlorine (TRC) Limitations and Monitoring Requirements (Part I.B)**

Rationale: This condition requires that the permittee monitor the TRC concentration after chlorine contact. In accordance with 40 CFR 122.41 (e) permittees are required, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. It specifies an E. coli limit when alternative disinfection methods are used. This condition is required by Sewerage Collection and Treatment Regulations, 9 VAC 25-790, bacteria standards. These requirements ensure proper operation of chlorination equipment to maintain adequate disinfection.

B. **Compliance Reporting under Part I.A and Part I.B (Part I.C.1)**

Rationale: In accordance with VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220 I, DEQ is authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR Part 130, Water Quality Planning and Management, Subpart 130.4. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. This condition also establishes protocols for calculation of reported values.

C. **95% Capacity Reopener (Part I.C.2)**

Rationale: This condition requires that the permittee address problems resulting from high influent flows, in a timely fashion, to avoid non-compliance and water quality problems from plant overloading. This requirement is contained in 9 VAC 25-31-200 B2 of the VPDES Permit Regulations.

D. **Indirect Dischargers (Part I.C.3)**

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-200 B1 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

E. **CTC, CTO Requirement (Part I.C.4)**

Rationale: This condition is required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

F. **Operation and Maintenance Manual Requirement (Part I.C.5)**

Rationale: Submittal of the Manual to DEQ for approval is required by the Code of Virginia Section 62.1-44.19; the Sewage Collection and Treatment Regulations, 9 VAC 25-790; and the VPDES Permit Regulation, 9 VAC 25-31-190 E, to provide an opportunity for review of current and proposed operations of the facility. The facility's updated (1/12/05) O&M Manual was approved on January 19, 2005. Within 90 days from the effective date of the permit, the permittee is required to either submit an updated Manual or notify DEQ that the Manual remains accurate.

G. **Reliability Class (Part I.C.6)**

Rationale: Reliability class designations are required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal and domestic sewage facilities. Facilities are required to achieve a certain level of reliability to protect water quality and public health in the event of component or system failure. A Reliability Class II has been assigned to this facility.

H. **Sludge Reopener (Part I.C.7)**

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage to allow incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act.

I. **Effluent Monitoring Frequencies (Part I.C.8)**

Rationale: Permittees are granted a reduction in monitoring frequency based on a history of permit compliance. If facilities fail to maintain the previous levels of performance, then normal monitoring frequencies should be reinstated.

J. **Total Maximum Daily Load (TMDL) Reopener (Part I.C.9)**

Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be

relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under Section 303 of the Act.

K. **Conditions Applicable to All VPDES Permits (Part II)**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. **Changes to the Permit:**

A. **Special conditions that have been modified from the previous permit are listed below: (The referenced permit sections are for the new permit.)**

1. The Additional Total Residual Chlorine Limitations and Monitoring Requirements Special Condition (Part I.B) has been modified to reflect changes in the Water Quality Standards.

2. The Compliance Reporting under Part I.A and Part I.B Special Condition (Part I.C.1) has been revised to include information about significant figures.

3. The Operations and Maintenance Manual Special Condition (Part I.C.5) has been revised in accordance with the VPDES Permit Manual.

B. **A new special condition added to the permit is listed below:**

1. A CTC, CTO Requirement Special Condition has been added as Part I.C.4 in accordance with the VPDES Permit Manual.

2. As required by the VPDES Permit Manual for all facilities treating domestic sewage, a Sludge Reopener Special Condition has been added as Part I.C.7.

3. A Total Maximum Daily Load (TMDL) Reopener Special Condition has been added as Part I.C.9 to allow opening of the permit if necessary to comply with any applicable TMDL for the receiving stream.

C. **Permit Limits and Monitoring Requirements:** See Table III on page 13 for details on changes to the effluent limits and monitoring requirements.

22. **Variances/Alternate Limits or Conditions:** No variances or alternate limits or conditions are included in this permit. A waiver was requested to allow that grab samples for TSS and BOD_5 required by the permit, be recorded on the application in lieu of composite samples. This waiver has been granted.

23. **Regulation of Treatment Works Users:** VPDES Permit Regulation 9 VAC 25-31-280 B9 requires that every permit issued to a treatment works owned by a person other than a state or

municipality provide an explanation of the Board's decision on the regulation of users. There are no industrial users contributing to the treatment works.

24. **Public Notice Information required by 9 VAC 25-31-280 B:**

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Becky L. France at:

Virginia DEQ, Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
540-562-6700
blfrance@deq.virginia.gov

Persons may comment in writing or by e-mail to the DEQ on the proposed permit action and may request a public hearing during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing, and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. A copy of the public notice is found in **Attachment H.**

Following the comment period, the DEQ will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

25. **303(d) Listed Segments (TMDL):** This facility discharges directly to the Jackson River. The stream segment receiving the effluent is not listed on the current 303(d) list; and therefore no Total Maximum Daily Loads (TMDLs) have been or are being developed for this segment.

26. **Additional Comments:**

A. **Previous Board Action:** None

B. **Staff Comments:** The discharge is not controversial, and is conformance with the existing planning document for the area.

C. **Public Comments:** No comments were received during the public comment period.

D. **Tables:**

Table I	Discharge Description (Page 2)
Table II	Basis for Monitoring Requirements (Page 12)

Table III Permit Processing Change Sheet (Page 13)

E. **Attachments:**

A. Flow Frequency Memorandum
B. Wastewater Schematics
C. Site Inspection Report
D. USGS Topographic Map
E. Ambient Water Quality Information
- STORET Data (Station 2-JKS030.65)
- 2004 Use Attainment Assessment Report (Excerpt)
- Water Quality Management Plan, Upper James-Jackson Subarea (9 VAC 25-720-60) (Excerpt)

F. Wasteload and Limit Calculations
- Mixing Zone Calculations (MIXER 2.1)
- Effluent Data
- Antidegradation Wasteload Allocation Spreadsheet
- STATS Program Results (ammonia, TRC)

G. Justification for Reduced Monitoring Frequency Memorandum
H. Public Notice
I. EPA Review Checksheet

Table II
BASIS FOR LIMITATIONS – MUNICIPAL

( ) Interim Limitations
(x) Final Limitations

OUTFALL: 001
DESIGN CAPACITY: 0.015 MGD

Effective Dates - From: Effective Date
To: Expiration Date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/D-Day	Estimate
pH (Standard Units)	1,2	NA	NA	6.0	9.0	1/D-Week	Grab
BOD_5	1,4	30 mg/L 1700 g/d	45 mg/L 2500 g/d	NA	NA	1/ 6 Months	Grab
Total Suspended Solids	1	30 mg/L 1700 g/d	45 mg/L 2500 g/d	NA	NA	1/ 6 Months	Grab
Dissolved Oxygen	2	NA	NA	6.5 mg/L	NA	1/D-Week	Grab
Total Residual Chlorine	3	2.0 mg/L	2.4 mg/L	NA	NA	1/D-Day	Grab

NA = Not Applicable
NL = No Limitations; monitoring only

1/D-Day = once per day of discharge
1/D-Week = once per week of discharge

The basis for the limitations codes are:

1. Federal Technology-Based Secondary Treatment Regulation (40 CFR Part 133)
2. Water Quality Criteria
3. Best Professional Judgment
4. Upper James-Jackson Subarea Water Quality Management Plan

Table III
PERMIT PROCESSING CHANGE SHEET

LIMITS AND MONITORING SCHEDULE:

Outfall No.	Parameter Changed	Monitoring Requirement Changed		Effluent Limits Changed		Reason for Change	Date
		From	To	From	To		
001	Total Suspended Solids			30 mg/L (4.5 kg/d) monthly average; 45 mg/L (45 mg/L (6.8 kg/d) weekly average	30 mg/L (1700 g/d) monthly average; 45 mg/L (45 mg/L (2500 g/d) weekly average	The loading limits have been revised to correct typographical errors.	4/13/09
001	BOD_6	1/3 Months	1/6 Months			Monitoring data supports a reduced monitoring frequency of 1/6 months.	4/13/09

Attachment A

Flow Frequency Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
3019 Peters Creek Road, Roanoke, Virginia 24019

SUBJECT: Flow Frequency Determination
Morris Hill STP – Reissuance (VA0032115)

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior BLF

DATE: March 23, 2009

This memorandum supercedes the July 12, 2004 memorandum concerning the subject VPDES permit. Morris Hill STP discharges to the Jackson River just below Gathright Dam. Stream flow frequencies are required at this site to develop effluent limitations for the VPDES permit.

This segment of the Jackson River is flow regulated by the discharge from the dam to guarantee minimum flow requirements are met at the Covington target area for water quality purposes. The lowest flow required at the target area is 158 cfs. To determine the volume of water to be released from the dam at certain flow conditions, an estimate of the flow contributed by the drainage area between the target area and the dam is needed. This estimate was made using the USGS gauge on the Jackson River at Falling Springs, Virginia (#02012500). The gauge is located approximately 8 miles downstream of the discharge.

Critical stream flow determinations were based on the continuous record gauge on the Jackson River at Falling Springs from 1925 to 1979 and the minimum flow requirement of 158 cfs. Measurements from this station were taken prior to flow regulation at Gathright Dam in December of 1979. These measurements were used to estimate the flow associated with the drainage area. Given the drainage area between Covington and Gathright Dam, the associated flows contributed from this drainage area were estimated using the drainage area proportions from the flow measurements at the Falling Spring gauge. The estimated flows and the Morris Hill WWTP design flow were then subtracted from 158 cfs to determine the flow frequencies above the treatment plant.

The high flow months are December through May. The flow frequencies for the discharge point are listed on the attached table.

Flow Frequency Determination: Morris Hill WWTP

Reference Gauge (data from 1925-1984)
New River at Glen Lyn, VA (#02012500)
Drainage Area [mi^2] = 411

	ft^3/s	MGD		ft^3/s	MGD
1Q10 =	64	41	High Flow 1Q10 =	74	48
7Q10 =	64	41	High Flow 7Q10 =	82	53
30Q5 =	76	49	HM =	197	127
30Q10=	70	45	High Flow 3010=	103	67

Flow contributed by the intervening drainage area
between Covington and Gathright Dam
Drainage Area [mi^2] = 101

	ft^3/s	MGD		ft^3/s	MGD
1Q10 =	16	10	High Flow 1Q10 =	18	12
7Q10 =	16	10	High Flow 7Q10 =	20	13
30Q5 =	19	12	HM =	48	31
30Q10=	17	11	High Flow 30Q10=	25	16

Morris Hill WWTP discharge 0.015 MGD 0.010 cfs

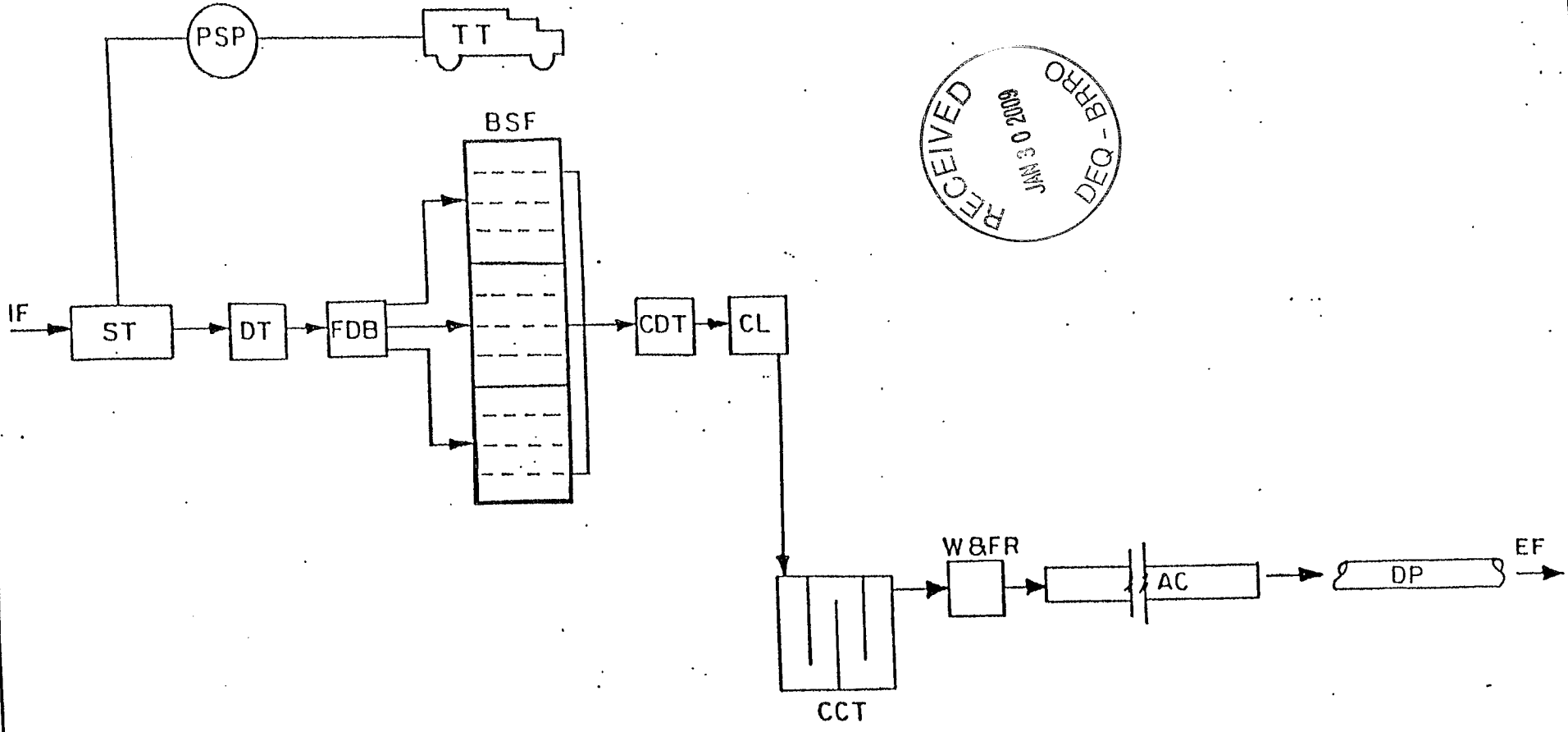
Flow frequencies for the reissued permit (6/16/08)
Jackson River above Discharge Point

	ft^3/s	MGD		ft^3/s	MGD
1Q10 =	**142**	**91.9**	**High Flow 1Q10 =**	**140**	**90.4**
7Q10 =	**142**	**91.9**	**High Flow 7Q10 =**	**138**	**89.1**
30Q5 =	**139**	**90.0**	**HM =**	**110**	**70.8**
30Q10=	**141**	**91.0**	**High Flow 30Q10=**	**133**	**85.8**

SITEID	NAME	RECORD	LATLONG	QUAD	DAAREA	HARMEAN	HF30Q10	HF7Q10	HF1Q10	Z30Q5	Z30Q10	Z7Q10	Z1Q10	Z1Q30	HFMTHS	STATPERIOD	YRSTRN	NOTES
02012500	Jackson River at Falling Springs, Va.	R, 1925-84	Lat 37 52'36", Long 79 58'38", NAD 83	Falling Spring	411	197	103	82	74	76	70	64	60	56	DEC-MAY	1925-1979	2005	Flow regulated by Lake Moomaw since Dec 1979

Attachment B

Wastewater Schematics

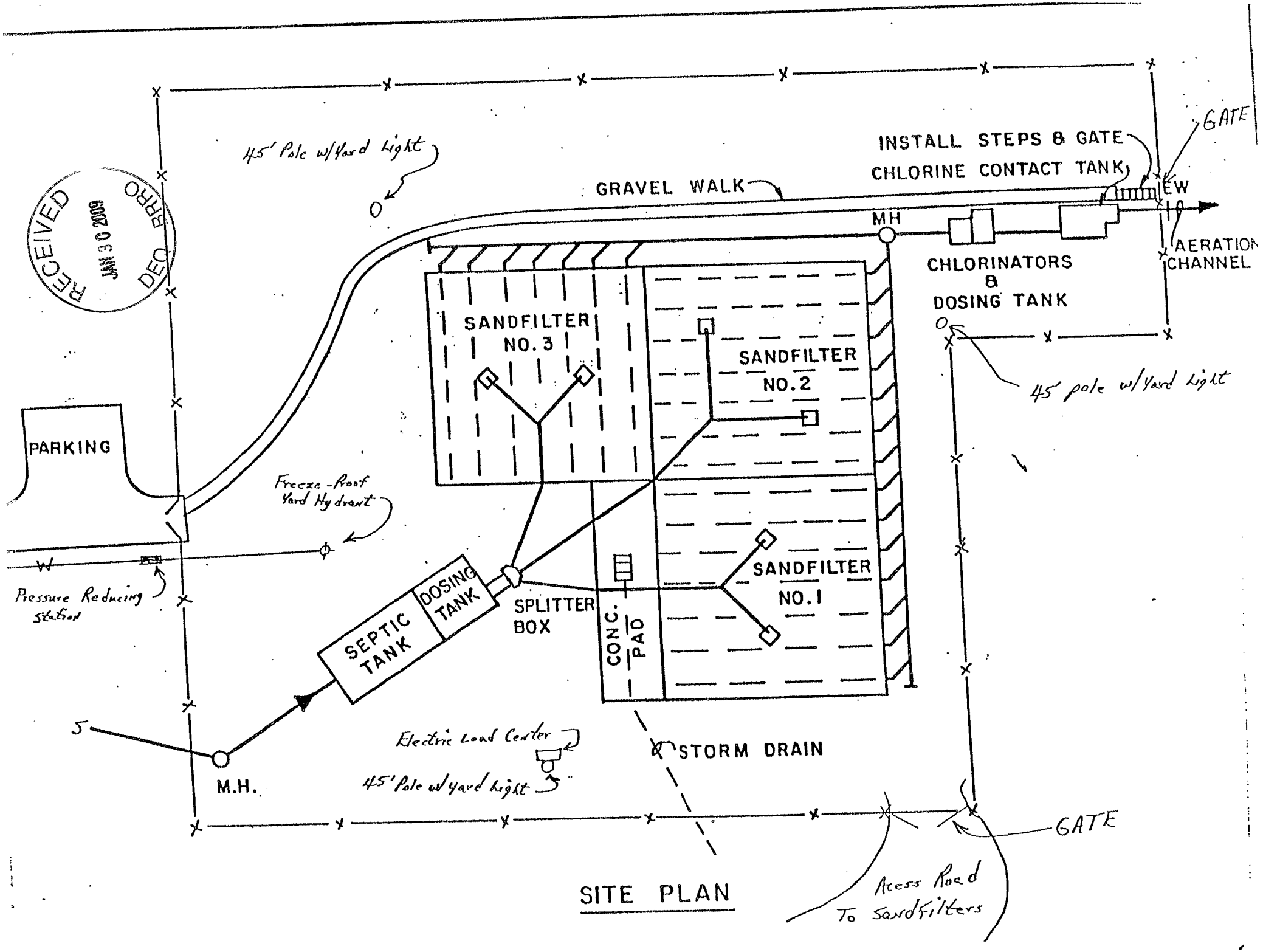


MORRIS HILL STP FLOW DIAGRAM

PLATE 2

ABBREVIATIONS

TT - TANK TRUCK
PSP - PORTABLE SLUDGE PUMP
IF - INFLUENT SEWAGE
ST - SEPTIC TANK
DT - DOSING TANK
FDB - FLOW DISTRIBUTION BOX
BSF - BIOLOGICAL (INTERMITTENT) SAND FILTERS
CDT - CHLORINATOR DOSING TANK
CL - CHLORINATORS
CCT - CHLORINE CONTACT TANK
W & FR - WEIR & FLOW RECORDER
AC - AERATION CHANNEL
DP - DIFFUSER PIPE
EF - EFFLUENT


RECEIVED
JAN 30 2009
DEQ BRRO
45' Pole w/Yard Light
GRAVEL WALK
INSTALL STEPS & GATE
CHLORINE CONTACT TANK
GATE
EW
MH
AERATION CHANNEL
CHLORINATORS & DOSING TANK
45' pole w/Yard Light
SANDFILTER NO. 3
SANDFILTER NO. 2
SANDFILTER NO. 1
PARKING
Freeze-Proof Yard Hydrant
Pressure Reducing Station
SEPTIC TANK
DOSING TANK
SPLITTER BOX
CONC. PAD
Electric Load Center
45' Pole w/Yard Light
STORM DRAIN
M.H.
GATE
Access Road To Sandfilters

SITE PLAN

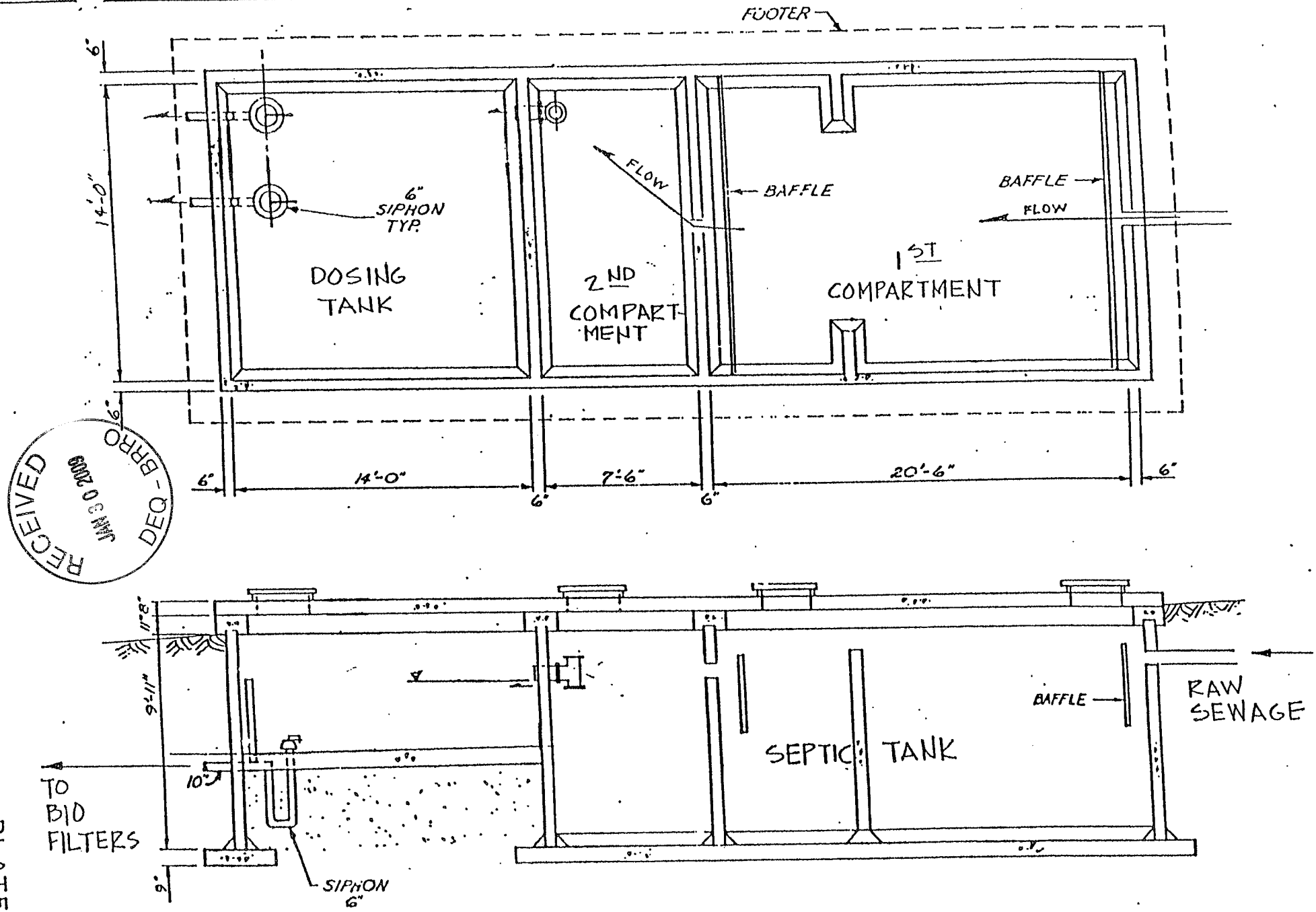
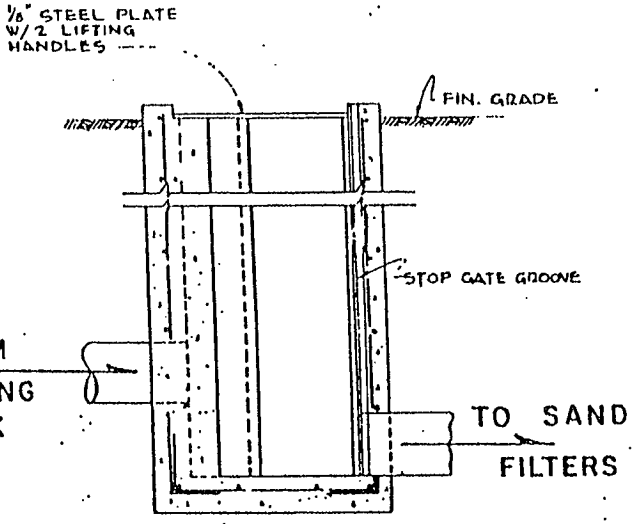
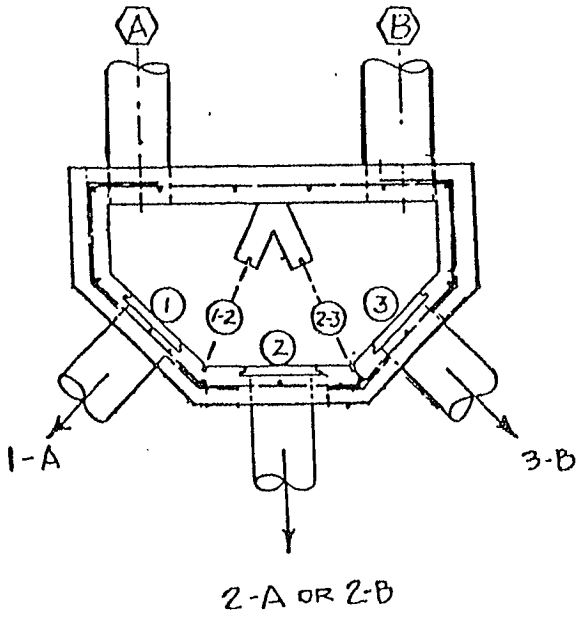


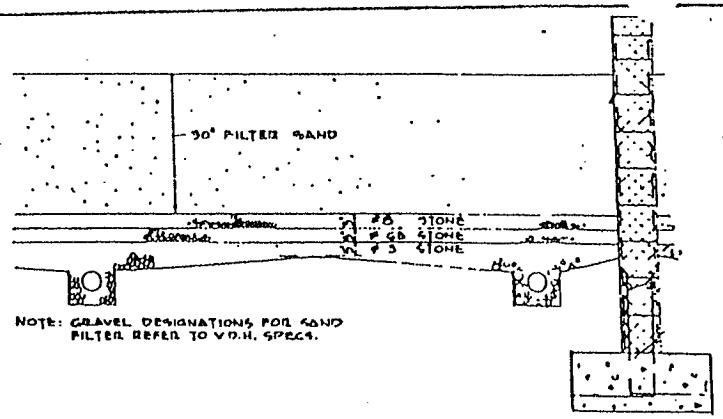
PLATE 3

SEPTIC TANK



DISTRIBUTION BOX





TYPICAL FILTER SECTION

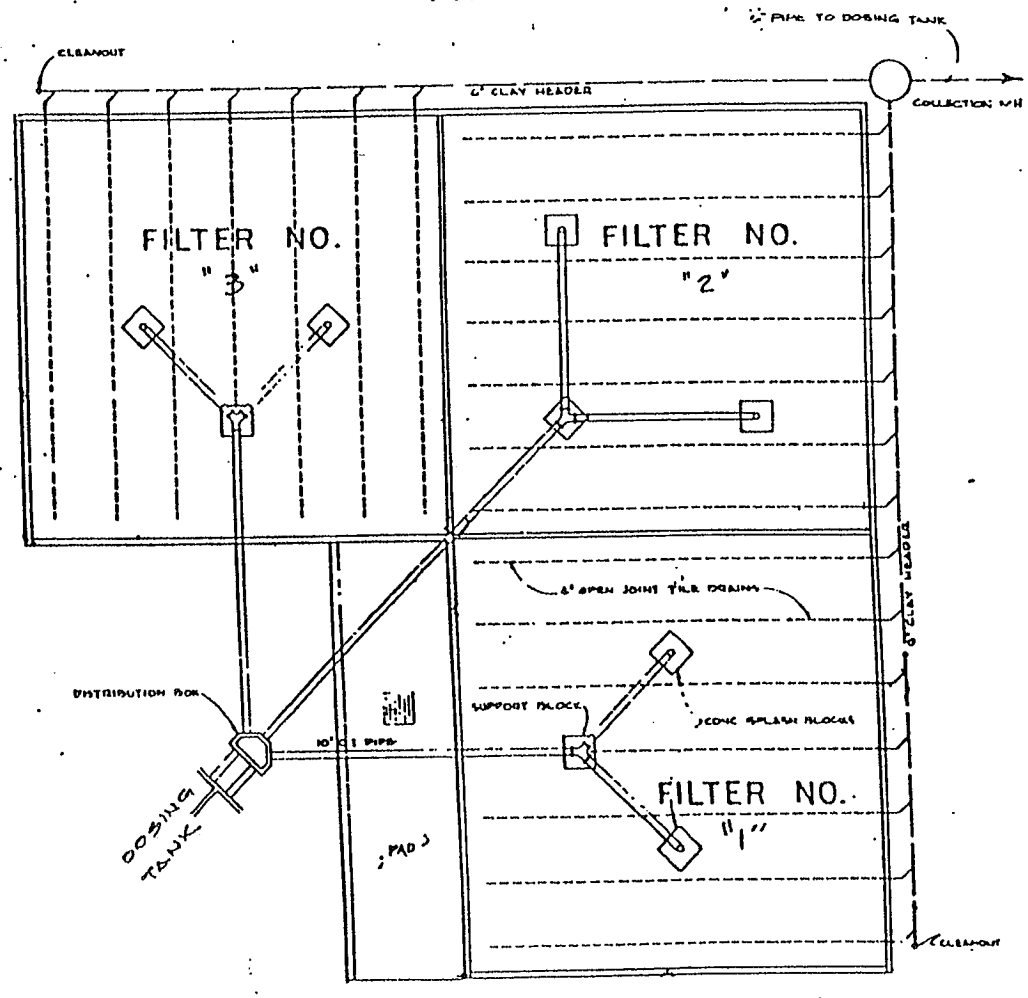
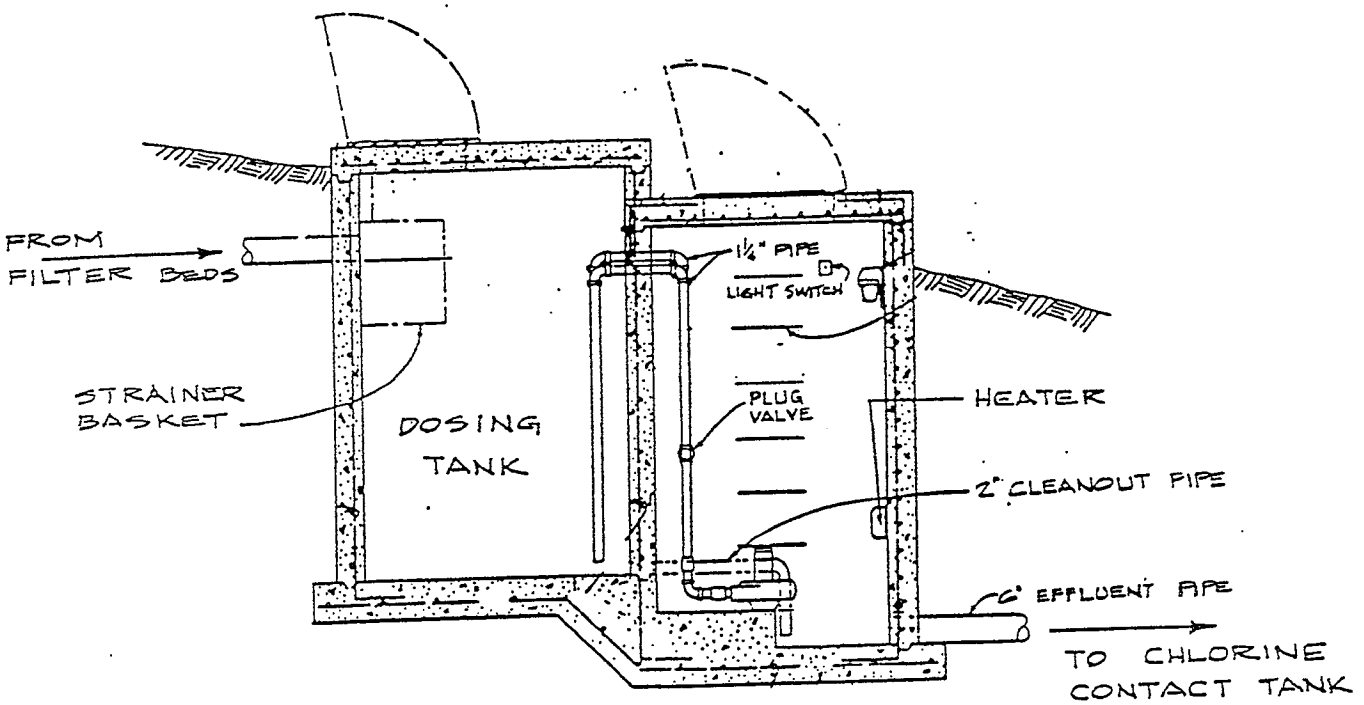
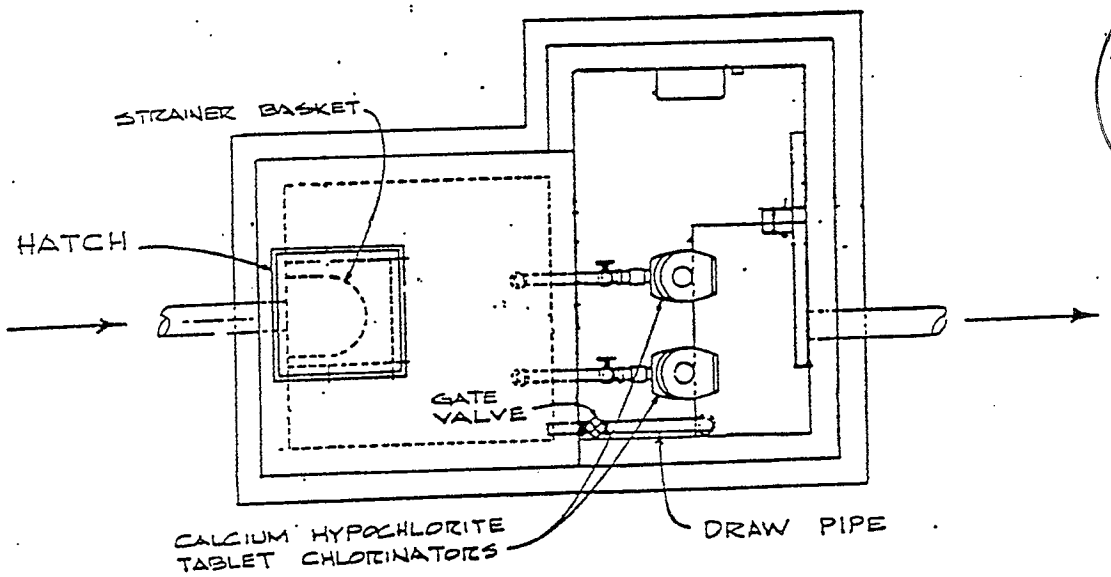


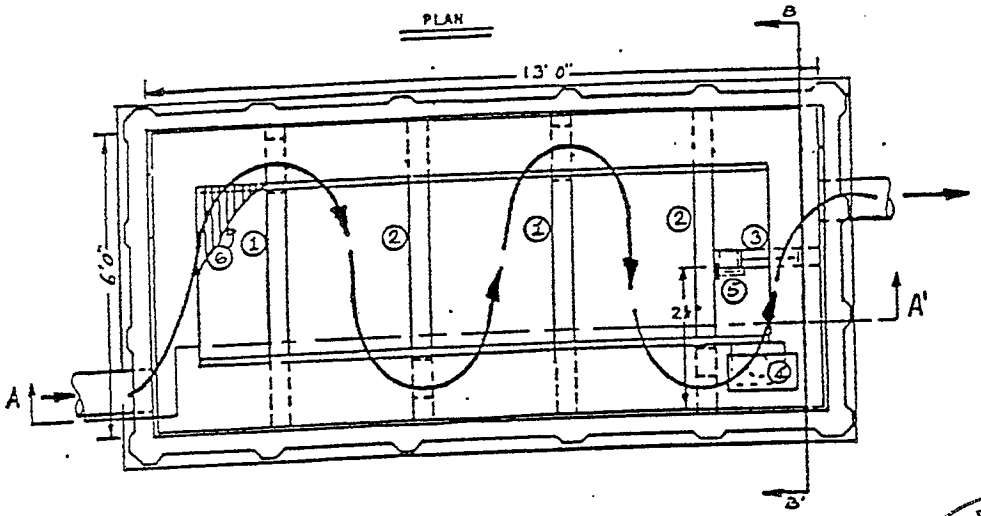
PLATE 4

BIO SAND FILTERS



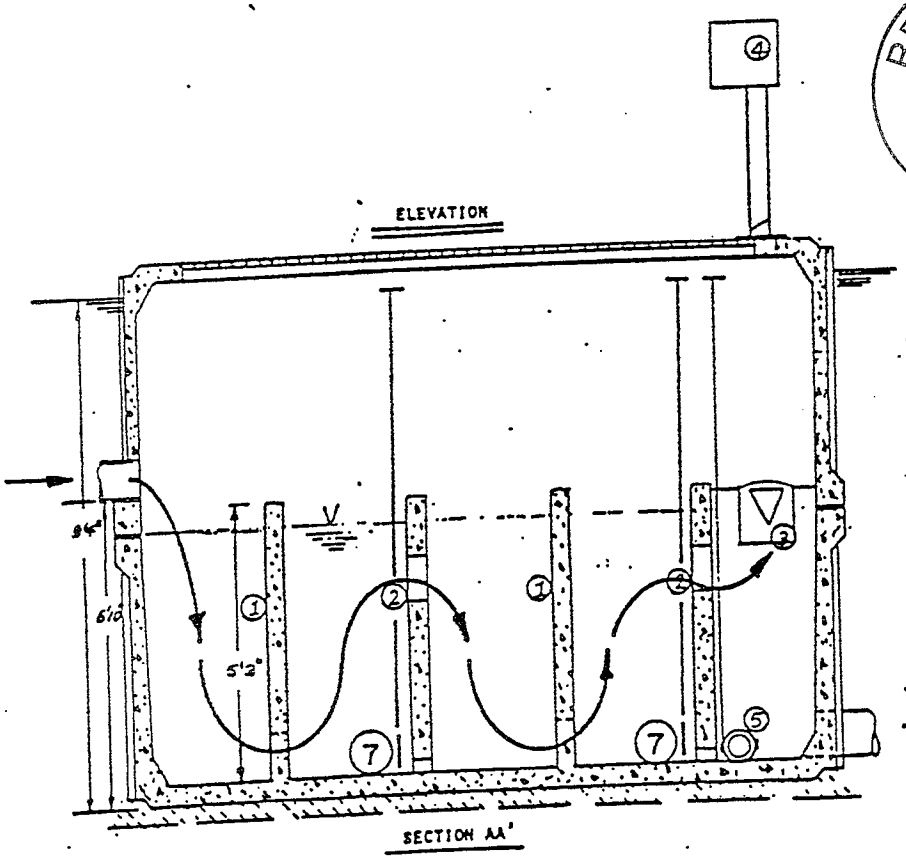


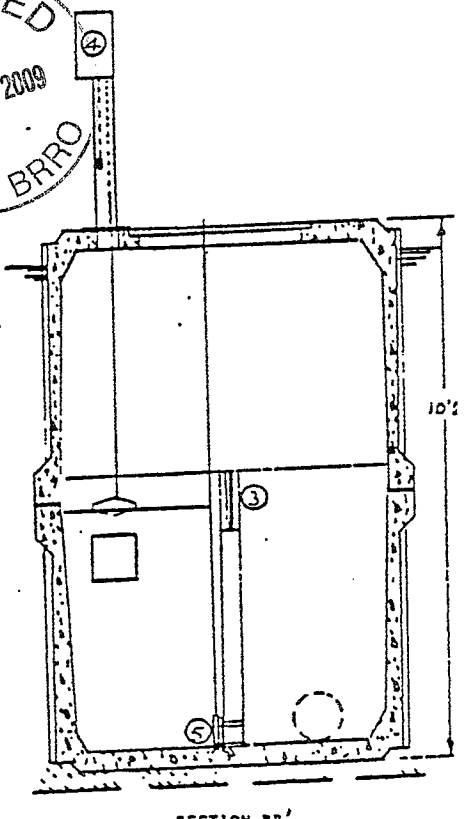
CHLORINATOR DOSING TANK & CHLORINATORS



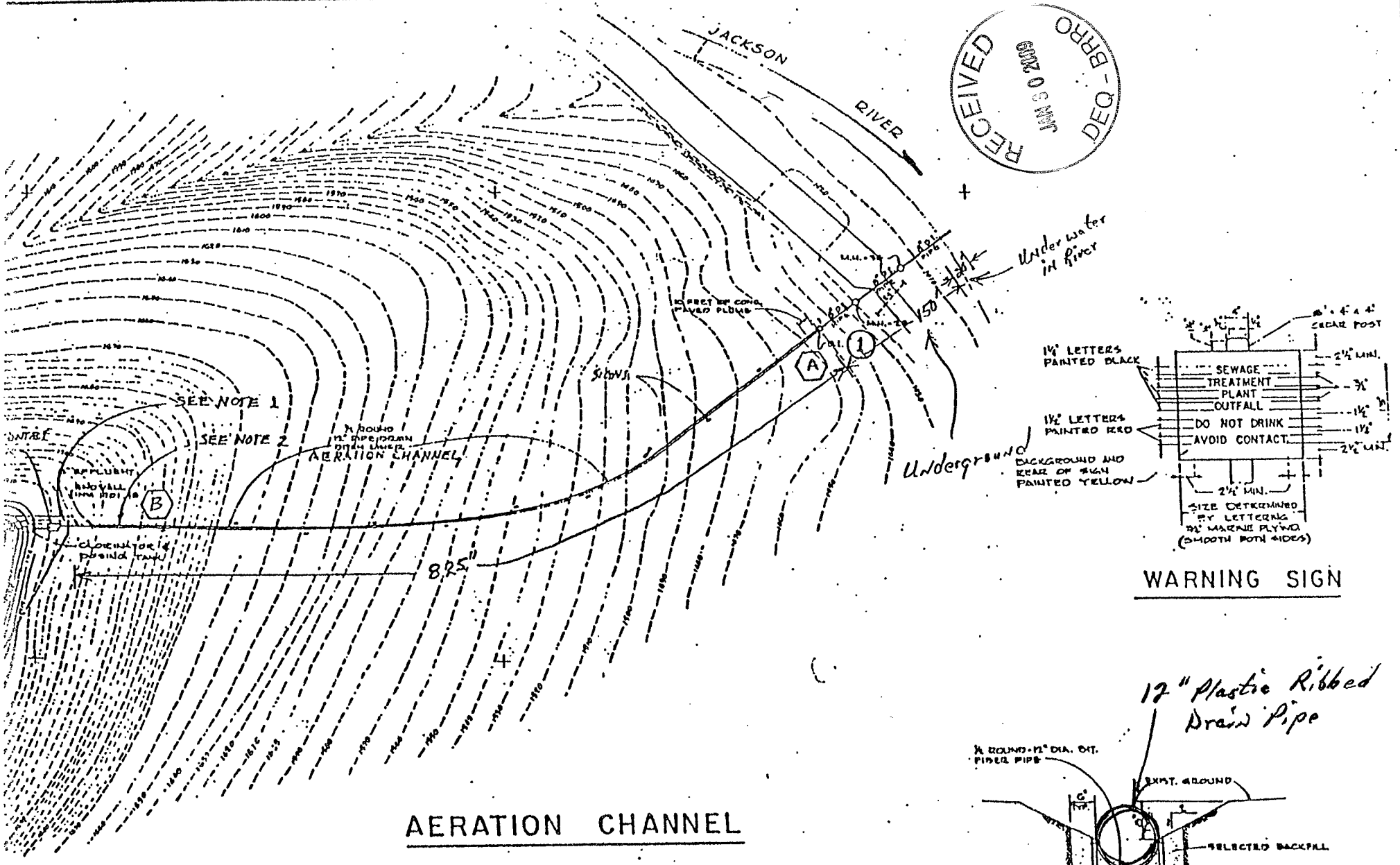
① BAFFLE - 4" CONCRETE W/ 10" X 10" BOTTOM OPENING.
② BAFFLE - 4" CONCRETE W/ 10" X 10" TOP OPENING & 2" X 3" BOTTOM DRAIN.
③ "V" NOTCH WEIR - 30° X 8" HT.
④ FLOW RECORDER W/ ENCLOSURE AND PIPE STAND.
⑤ 4" SHEAR GATE W/ HANDLE (M & H STYLE # 44)
⑥ ALUMIN. GRATING, 1 BAR 1" (KIA 400, S=.345 IN.²/KG IND.)
⑦ DRAIN GATES

FLOW PATH





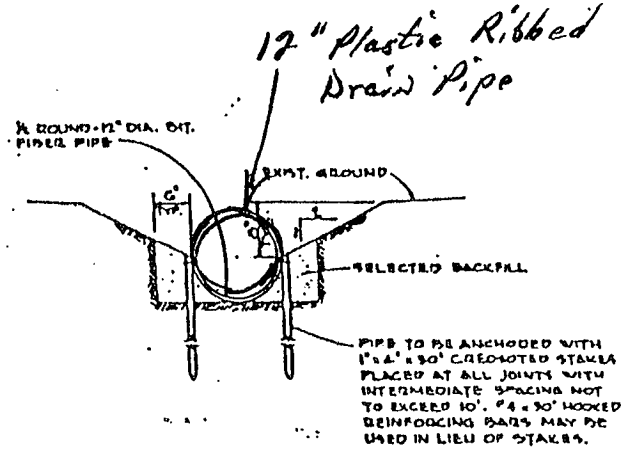
CHLORINE CONTACT TANK & FLOW RECORDER



AERATION CHANNEL

RECEIVED
JAN 30 2002
DEQ - BARRO

WARNING SIGN



AERATION CHANNEL SECTION

NOTE: 1. 12" diameter ribbed plastic drain pipe was installed in aeration channel in 1992 to eliminate problem with leaves, sticks, etc. clogging channel.

Attachment C

Site Inspection Report

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: Site Inspection Report for Morris Hill STP
Reissuance of VPDES Permit No. VA0032115

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior

DATE: March 20, 2009 (Revised 4/13/09)

On March 20, 2009, a site inspection was conducted of the Morris Hill STP. Mr. Bill Siple, facilities manager, and Tim Flannagan, assistant operator, were present at the inspection. The 0.015 MGD facility treats sewage for the Morris Hill Campground and the Gathright Dam Visitor's Center and offices. The campground is open from Memorial Day to Labor Day and the visitor's center is open year-round. Potable water is supplied by a well. All of the sewage collection and wastewater treatment facilities are owned and operated by the U.S. Army Corps of Engineers. The sewer connections for the campground are owned by the U.S. Forest Service. There is one pumping station to deliver flow from the administration building. The rest of the collection system flows by gravity.

The 15,000 gpd wastewater treatment system consists of septic tank, dosing tank, distribution box, three sand filters, tablet chlorinator, chlorine contact tank, flow meter, and cascade aeration. The system is underloaded and the average discharge during the summer months is approximately 1,800 gallons per day. In the winter months, the system may only discharge once per month. The disinfected effluent is piped about a quarter of a mile down the side of the mountain to the Jackson River.

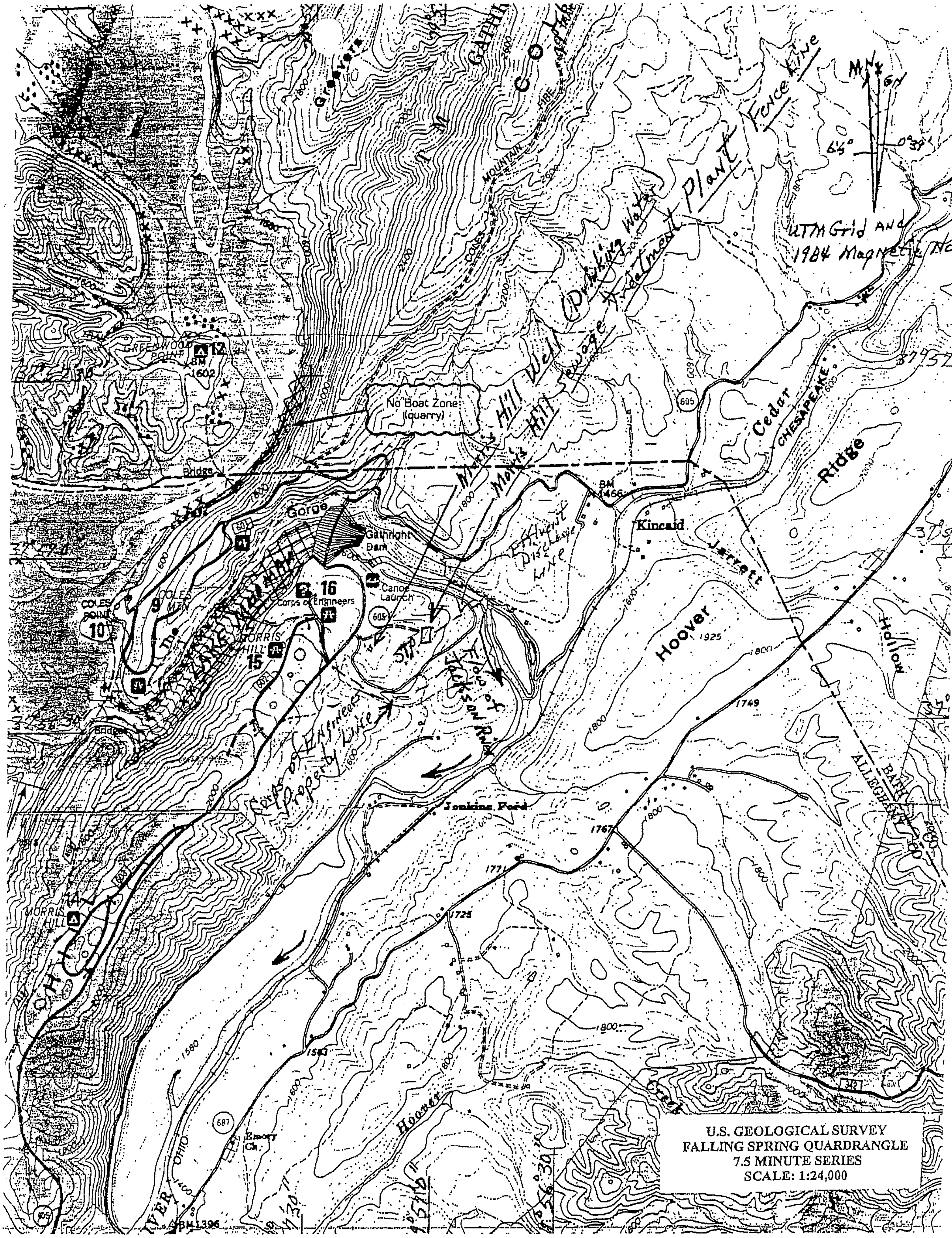
The septic tanks is pumped about every two years and transported to a POTW. The wastewater from the 20,000 gallon dual chamber septic tank flows into a dosing tank. Once this tank reaches capacity, the wastewater automatically discharges to a distribution box. The distribution box consists of three gates that can be manually moved to control the flow to the sand filters. One of the sand filters is not used because the sand in the filter does not meet specifications. Due to the low flows, only one of the filters is used at any given time. Each of the two sand filters is used for about two years before switching to the other one.

The flow enters the sand filters through a 10-inch pipe, and is then dispersed over a splash pad onto the sand. Each filter consists of a 30-inch deep layer of sand overlain by graded gravel and collection tile. At the time of the site visit, one sand filter was in use and there was no ponding of wastewater on the filter. There was no vegetation on any of the sand filters.

Sand filter underflow is routed to a dosing tank with a tablet chlorinator and then into a baffled chlorine contact chamber. The effluent flows through a 12 inch pipe down the side of the mountain to the outfall on the Jackson River. The outfall is about a quarter of a mile below Gathright Dam. The facility has a flow recorder that indicates when a discharge occurs. During the month of March 2009 the recorder indicated flow on two days. Flow is estimated from the discharge weir. At the time of the site visit, there was no discharge from the plant

Attachment D

USGS Topographic Map



Fence Line
MN
GN
UTM Grid And
1984 Magnetic North
Sewage Treatment Plant
Morris Hill Well (Drinking Water)
No Boat Zone
(quarry)
Bridge
Gorge
Gathright
Dam
Canoe
Launch
Corps of Engineers
STP
Effluent
Discharge
Line
Flow of Jackson River
Corps of Engineers
Property Line
Kincaid
Cedar
CHESAPEAKE
Ridge
Jarrett
Hoover
Hollow
ALLEGHANY
BATH
Jenkins Ford
COLES
POINT
GREENWOOD
POINT
MORRIS
HILL
Emory
Ch.
U.S. GEOLOGICAL SURVEY
FALLING SPRING QUADRANGLE
7.5 MINUTE SERIES
SCALE: 1:24,000

Attachment E

Ambient Water Quality Information

- **STORET Data (Station 2-JKS030.65)**
- **2004 Use Attainment Assessment Report (Excerpt)**
- **Water Quality Management Plan, Upper James-Jackson Subarea (9 VAC 25-720-60) (Excerpt)**

VAW-I04R (Rt 687 Bridge - Clearwater Park) (Covington Quad)
2-JKS030.65

Collection Date Time	Depth	Temp Celsius	DO Probe (mg/L)	Field pH (S.U.)	Ammonia Nitrogen, Total (mg/L as N)	Hardness, Total (mg/L as CaCO3)	E. coli - MTEC-MF No./100 mL
1/13/2000 8:45	0.3	5.4	11.7	7.68	<0.04	108	
2/24/2000 9:10	0.3	6.5	12.3	7.64	<0.04	101	
3/28/2000 8:50	0.3	7.6	11.5	7.31	<0.04	80	
4/19/2000 9:45	0.3	10.7	10.8	7.87	<0.04	68	
5/15/2000 9:50	0.3	13.5	9.8	7.71	<0.04	89	
6/1/2000 9:30	0.3	15	9.5	7.43	<0.04	73	
7/10/2000 10:00	0.3	17.6	9	7.57	0.04	80	
8/1/2000 10:35	0.3	18.2	8.9	7.69	<0.04	80.9	
9/7/2000 10:30	0.3	14.3	9.1	7.16	<0.04	77.4	
10/4/2000 11:15	0.3	16.7	8.7	8.2	<0.04	77.8	
11/2/2000 9:30	0.3	10	10.2	7.5	<0.04	78.6	
12/6/2000 11:00	0.3	3.7	12.3	7.22	<0.04	177.5	
1/9/2001 9:30	0.3	2.1	13.6	8.58	<0.04	88.9	
2/1/2001 10:45	0.3	4.7	12.8	8.28	<0.04	85.3	
3/1/2001 10:30	0.3	4.6	12.8	8.81	<0.04	45.7	
4/2/2001 11:15	0.3	7.8	12.4	8.8	<0.04	59.1	
5/1/2001 10:00	0.3	12.2	10.57	8.12	<0.04	43.4	
6/5/2001 10:50	0.3	15.8	9.61	8.39	<0.04	75.9	
7/19/2001 11:00	0.3	16.9	9.23	8.18	<0.04	41.6	
8/16/2001 11:45	0.3	16.9	9.71	8.16	<0.04	74.4	
9/10/2001 11:20	0.3	17.3	8.52	8.5	<0.04	74.1	
10/10/2001 11:30	0.3	11.1	10.73	8.12	<0.04	72.5	
11/28/2001 10:20	0.3	11.7	9.53	7.21	<0.04	57.9	
12/18/2001 12:30	0.3	10.5	10.16	8.27	<0.04	72.6	
1/22/2002 10:55	0.3	4.2	13.04	8.21	<0.04	76.8	
2/19/2002 10:20	0.3	4.5	11.99	7.21	<0.04	69.6	
3/26/2002 11:10	0.3	9.63	11.51	7.73	<0.04	94.7	
4/17/2002 15:30	0.3	17.67	10.13	8.09	<0.04	100	
5/23/2002 13:00	0.3	14.57	9.71	7.8	<0.04	72.9	
6/17/2002 11:15	0.3	15.66	9.58	7.73		87.6	
7/18/2002 12:45	0.3	17.75	9.14	7.74	<0.04	75.6	
8/7/2002 11:40	0.3	16.63	7.4	7.6	<0.04	74.8	
9/17/2002 11:50	0.3				<0.04	297.2	
10/21/2002 12:10	0.3	14.49	8.57	7.8	<0.04	82.6	
11/18/2002 12:30	0.3	9.8	10.87	8.64	<0.04	84.2	
12/16/2002 12:30	0.3	7.36	11.37	7.77	<0.04	63.7	
2/3/2003 13:05	0.3	4.7	13.15	8.26	<0.04	80.9	
3/3/2003 10:25	0.3	6.42	12.82	7.85	<0.04	62.8	
3/24/2003 12:45	0.3	7.8	11.81	7.94	<0.04	50.7	
5/1/2003 12:30	0.3	12.92	11.06	7.89	<0.04	31.1	
6/19/2003 10:30	0.3	15.48	9.34	7.57	<0.04	80.7	
7/17/2003 12:20	0.3	17.3	9.84	8.12			10
9/29/2003 13:30	0.3	15.74	10.26	7.93			70
11/18/2003 12:05	0.3	12.33	10.02	7.38			30
1/13/2004 12:50	0.3	5.62	11.52	7.75			<10
3/8/2004 12:50	0.3	5.8	9.6	7.8			10
5/20/2004 13:15	0.3	12.68	11.25	8.15			20
7/7/2004 11:30	0.3	16.8	9.26	7.87			25
9/23/2004 12:45	0.3	17.58		7.75			25

VAW-I04R (Rt 687 Bridge - Clearwater Park) (Covington Quad)
2-JKS030.65

Collection Date Time	Depth	Temp Celsius	DO Probe (mg/L)	Field pH (S.U.)	Ammonia Nitrogen, Total (mg/L as N)	Hardness, Total (mg/L as CaCO3)	E. coli - MTEC-MF No./100 mL
11/17/2004 12:50	0.3	12.61	10.67	8.25			25
1/5/2005 13:30	0.3	9.14	11.65	8.12			<25
3/29/2005 12:30	0.3	9.54	11.69	8.34			<25
5/2/2005 13:45	0.3	9.95	12.38	8.53			<25
7/12/2005 12:30	0.3	17	8.5	7.85			<25
9/28/2005 12:00	0.3	16	9.5	8.3			<25
11/9/2005 11:00	0.3	14.3	9.9	8.1			120
1/24/2006 12:00	0.3	5.9	13.9	7.7			<25
3/30/2006 12:00	0.3	8.6	16	7.5			<25
5/1/2006 12:30	0.3	13.3	11.7	7.6			<25
7/31/2006 13:00	0.3	18.6	9.4	7.3			<25
9/7/2006 13:00	0.3	17.6	9.3	8.2			<25
11/14/2006 10:30	0.3	11	10.3	7.8			<25
1/10/2007 11:30	0.3	7.2	11.2	7.1			<25
3/22/2007 11:30	0.3	8.3	12.4	7.6			<25
5/15/2007 13:00	0.3	13.9	10.1	7.5			<25
7/26/2007 11:30	0.3	17.4	10	7.6			25
9/27/2007 13:00	0.3						<50
11/19/2007 13:00	0.3	10	13.1	7.3			25
1/8/2008 12:30	0.3	7.8	11.6	7.4			<25
3/13/2008 12:30	0.3	9	11.8	7			<25
3/25/2008 12:30	0.3	7.8	12.6	6.9			
5/7/2008 12:00	0.3	10	10.5	7.1			<25
7/29/2008 12:30	0.3	17.7	10.3	8.2			<25
9/22/2008 12:00	0.3	15.2	9.4	8			<25
11/24/2008 11:00	0.3	4.9	13.4	8.3			25
1/22/2009 13:00	0.3	1.4	15.7	7.9			<25
3/11/2009 12:30	0.3	9	11.8	7.8			<25

Mean Hardness	82	mg/L	
90th Percentile pH	8.3	S.U.	
10th Percentile pH	7.3	S.U.	
90th Percentile temperature	17.5	°C	annual
90th Percentile temperature	13.3	°C	December - May (high flow months)

2004 Use Attainment by Assessment Units (AU)

Watershed ID: VAW-I04R

Total Watershed Size: 105.03 M

AU ID: **VAW-I04R_ZZZ01A00** **70.97** M *AU Overall Category:* **3A**

LOCATION: Remaining waters in Watershed I04R.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class IV Sec. 12 None No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-I04R_RRG02A02** **1.84** M *AU Overall Category:* **3A**

LOCATION: Roaring Run mainstem from the Route 684 crossing upstream to its headwaters.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class V Sec. 12 None No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-I04R_RRG01A00** **0.26** M *AU Overall Category:* **3A**

LOCATION: Roaring Run mainstem from its mouth on the Jackson River upstream to the Route 684 crossing.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class IV Sec. 12 None No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-I04R_JKS05A02** **6.14** M *AU Overall Category:* **2A**

LOCATION: Jackson River mainstem from the confluence of Falling Spring Creek upstream to Gathright Dam.

State TMDL ID	Use	WOS Attainment	303(d) Impairment Initial List Year
	Aquatic Life	Fully Supporting	
	Fish Consumption	Not Assessed	
	Recreation	Fully Supporting	
	Wildlife	Fully Supporting	

WQS Class V Sec. 12 None
Assessment basis: DEQ stations 2-JKS044.10 (AQ), 2-JKS039.01 (RBPII). 2-JKS044.10- FC, DO, Temp, pH, TP, chlorophyll a, and NH3-N/Full Support. 2-JKS039.01- Bio NI; no impairment. This station was sampled to assess conditions between Gathright Dam and Clearwater Park (JKS030.65). Despite the river's altered flow and temperature regime the benthic community is dominated by sensitive organisms and is rated "non-impaired" when compared to the long-term reference site downstream at Clearwater Park (above the City of Covington). No VDH fish consumption advisory.

2004 Use Attainment by Assessment Units (AU)

AU ID: **VAW-I04R_JKS04A00** **6.65** M *AU Overall Category:* **2A**

LOCATION: Jackson River mainstem from the upstream end of the WQS public water supply (PWS) section on upstream to the mouth of Falling Spring Creek.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	**Fully Supporting**	
	Fish Consumption	**Not Assessed**	
	Recreation	**Fully Supporting**	
	Wildlife	**Fully Supporting**	

WQS Class V Sec. 12 None
Assessment basis: DEQ station 2-JKS039.01 (RBPII), 2-JKS030.65 (AQ, RBPII - REF, SS). 2-JKS039.01- Bio NI; no impairment. This station was sampled to assess conditions between Gathright Dam and Clearwater Park (JKS030.65). Despite the river's altered flow and temperature regime the benthic community is dominated by sensitive organisms and is rated "non-impaired" when compared to the long-term reference site downstream at Clearwater Park (above the City of Covington). 2-JKS030.65- Bio NI; no impairment. The upstream land use is mostly forest with some agriculture that has a minimal impact on this stream reach, resulting in habitat and water quality that is suitable for a diverse benthic community. 2-JKS030.65- FC, Sediment, DO, Temp, pH, TP, chlorophyll a, dissolved metals, NH3-N and chlorides/Full Support. No VDH fish consumption advisory.

AU ID: **VAW-I04R_JKS03A00** **5.00** M *AU Overall Category:* **2A**

LOCATION: Jackson River mainstem from the Covington water intake upstream to the end of the WQS designated public water supply (PWS) section.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	**Fully Supporting**	
	Fish Consumption	**Not Assessed**	
	Public Water Supply	**Fully Supporting**	
	Recreation	**Fully Supporting**	
	Wildlife	**Fully Supporting**	

WQS Class V Sec. 12j PWS
Assessment basis: DEQ station 2-JKS030.65 (AQ, RBPII - REF, SS) & 2-JKS026.01 (SS) & DO Recorder 2-JKS030.65- Bio NI; no impairment. The upstream land use is mostly forest with some agriculture that has a minimal impact on this stream reach, resulting in habitat and water quality that is suitable for a diverse benthic community. 2-JKS030.65- FC, Sediment, DO, Temp, pH, TP, chlorophyll a, dissolved metals, NH3-N and chlorides/Full Support. 2-JKS026.01- Grabs DO, Temp & pH/Full Support. DO recorder no exceedances. No VDH fish consumption or drinking water advisories.

AU ID: **VAW-I04R_JKS02A00** **1.24** M *AU Overall Category:* **5A**

LOCATION: Jackson River mainstem from the Covington water intake downstream to Westvaco main processing outfall.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	**Not Assessed**	
	Fish Consumption	**Not Assessed**	
VAW-I04R-01	**Recreation**	**Not Supporting**	
	303(d) Parameter:	Total Fecal Coliform	2002
	Wildlife	**Not Assessed**	

WQS Class IV Sec. 12 None
Assessment basis: DEQ station 2-JKS023.61 (AQ) located downstream in VAW-I09R. 2-JKS023.61- No exceedances from 15 observations are found for Escherichia coli (E. coli) 235 cfu/100 ml (WQS instantaneous criterion); these waters are 1998 303(d) listed for fecal coliform. WQS require the use of E. coli for assessments (12 observations) making this AU a candidate for FC 303(d) delisting. However E. coli monthly collections were made in the period Feb 2000 thru June 2001 during the 4 year drought from 1999-2002. FC observations exceed the 400 cfu/100 ml instantaneous criterion in 13 of 60 observations spanning the Assessemnt data window of Jan. 1998 thru Dec. 2002. Maximum FC values are in excess of 8000 cfu/100 ml. Numerous overflows from the collector system in the Covington urban area have been recorded with most occurances during storm events. The lack of E. coli data collections under normal conditions, the magnitude of FC criterion excursions and reported collector system overflows cause the impaired status to remain. An additional cycle of data collection will aide in the subsequent listing or de-listing action. No VDH fish consumption advisory.

2004 Use Attainment by Assessment Units (AU)

AU ID: **VAW-I04R_JKS01A00** **0.47** M *AU Overall Category:* **5A**

LOCATION: Jackson River mainstem from the Westvaco main processing outfall downstream to Dunlap Creek mouth.

State TMDL ID	*Use*	*WQS Attainment*	*303(d) Impairment Initial List Year*
VAW-I04R-01	Aquatic Life	Not Supporting	
	303(d) Parameter:	Benthic-Macroinvertebrate Bioassessments (Streams)	1996
		Oxygen, Dissolved	1996
	Fish Consumption	Not Assessed	
VAW-I04R-01	Recreation	Not Supporting	
	303(d) Parameter:	Total Fecal Coliform	1996
	Wildlife	Fully Supporting	

WQS Class IV Sec. 12 None
Assessment basis: DEQ stations 2-JKS023.61 (AQ, RBPII, SS); 2-JKS022.15 (SS)- Recorder; stations are downstream in VAW-I09R. 2-JKS023.61- No exceedances from 15 observations are found for Escherichia coli (E. coli) 235 cfu/100 ml (WQS instantaneous criterion); these waters are 1998 303(d) listed for fecal coliform. WQS require the use of E. coli for assessments (12 observations) making this AU a candidate for FC 303(d) delisting. However E. coli monthly collections were made in the period Feb 2000 thru June 2001 during the 4 year drought from 1999-2002. FC observations exceed the 400 cfu/100 ml instantaneous criterion in 13 of 60 observations spanning the Assessemnt data window of Jan. 1998 thru Dec. 2002. Maximum FC values are in excess of 8000 cfu/100 ml. Numerous overflows from the collector system in the Covington urban area have been recorded with most occurances during storm events. The lack of E. coli data collections under normal conditions, the magnitude of FC criterion excursions and reported collector system overflows cause the impaired status to remain. An additional cycle of data collection will aide in the subsequent listing or de-listing action. 2-JKS023.61- Bio 'VI' severe impairment; The invertebrate community at this site has been dominated by taxa that are tolerant of environments with low dissolved oxygen and high levels of organic pollution (i.e. Tubificidae, Planariidae, Chironomidae, and Simulidae). 2-JKS023.61- DO exceeds the WQS minimum of 4.0 mg/l in six of 26 1998 special study observations; TP exceeds the SV of 0.20 mg/l in 27/58- 'Observed Effect'. No exceedances are found from seven chlorophyll a observations or 63 temperature and pH measurements. Ambient DO collections found no exceedances of the minimum criterion however diurnal effects are found at 2-JKS022.15. Water column toxics also reveal full support. Sediment data finds no excursions of the PEC SV's. 2-JKS022.15- 1998 DO Recordings find 222 excursions of the minimum 4.0 mg/l WQS criterion from 481 measurements; Diurnal affects are noted. No VDH fish consumption advisory.

AU ID: **VAW-I04R_FAS02A02** **3.51** M *AU Overall Category:* **3A**

LOCATION: Falling Spring Creek mainstem from an unnamed tributary located at 37°52'48" / 79°54'52" upstream to its headwaters.

State TMDL ID	*Use*	*WQS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class V Sec. 12 None No current data. These waters are not assessed. No VDH fish consumption advisory.

AU ID: **VAW-I04R_FAS01A00** **4.76** M *AU Overall Category:* **3A**

LOCATION: Falling Spring Creek mainstem from its mouth to confluence of an unnamed tributary located at 37°52'48" / 79°54'52".

State TMDL ID	*Use*	*WQS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	Not Assessed	
	Fish Consumption	Not Assessed	
	Recreation	Not Assessed	
	Wildlife	Not Assessed	

WQS Class V Sec. 12 None No current data. These waters are not assessed. No VDH fish consumption advisory.

2004 Use Attainment by Assessment Units (AU)

AU ID: **VAW-I04R_DRU01A02** **4.19** M *AU Overall Category:* **2A**

LOCATION: Dry Run mainstem from its confluence on the Jackson River upstream to its headwaters.

State TMDL ID	*Use*	*WOS Attainment*	*303(d) Impairment Initial List Year*
	Aquatic Life	**Fully Supporting**	
	Fish Consumption	**Not Assessed**	
	Recreation	**Not Assessed**	
	Wildlife	**Not Assessed**	

WQS Class IV Sec. 12 None
Assessment basis: US Forest Service MAIS station 3028. 3028- Bio NI; Single Survey '98 (MAIS 17 VG) no impairment. No VDH fish consumption advisory.

NOTE: (1) Shenandoah Co. - North Fork Regional WWTP: waste load allocations (WLAs) based on a design flow capacity of 0.75 million gallons per day (MGD). If plant is not certified to operate at 0.75 MGD design flow capacity by 12/31/10, the WLAs will be deleted and facility removed from Significant Discharger List.

(2) Harrisonburg-Rockingham Regional S.A.-North River STP: waste load allocations (WLAs) based on a design flow capacity of 20.8 million gallons per day (MGD). If plant is not certified to operate at 20.8 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 194,916 lbs/yr; TP = 14,619 lbs/yr, based on a design flow capacity of 16.0 MGD.

(3) Mount Jackson STP: waste load allocations (WLAs) based on a design flow capacity of 0.7 million gallons per day (MGD). If plant is not certified to operate at 0.7 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 7,309 lbs/yr; TP = 548 lbs/yr, based on a design flow capacity of 0.6 MGD.

(4) Purcellville-Basham Simms STP: waste load allocations (WLAs) based on a design flow capacity of 1.5 million gallons per day (MGD). If plant is not certified to operate at 1.5 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 12,182 lbs/yr; TP = 914 lbs/yr, based on a design flow capacity of 1.0 MGD.

(5) Loudoun Co. S.A.-Broad Run WRF: waste load allocations (WLAs) based on a design flow capacity of 11.0 million gallons per day (MGD). If plant is not certified to operate at 11.0 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 121,822 lbs/yr; TP = 3,046 lbs/yr, based on a design flow capacity of 10.0 MGD.

(6) Dale Service Corp.-Section 1 WWTF: waste load allocations (WLAs) based on a design flow capacity of 4.6 million gallons per day (MGD). If plant is not certified to operate at 4.6 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,193 lbs/yr, based on a design flow capacity of 4.0 MGD.

(7) Dale Service Corp.-Section 8 WWTF: waste load allocations (WLAs) based on a design flow capacity of 4.6 million gallons per day (MGD). If plant is not certified to operate at 4.6 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,193 lbs/yr, based on a design flow capacity of 4.0 MGD.

(8) Fauquier Co. W&SA-Vint Hill STP: waste load allocations (WLAs) based on a design flow capacity of 0.95 million gallons per day (MGD). If plant is not certified to operate at 0.95 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 5,482 lbs/yr; TP = 548 lbs/yr, based on a design flow capacity of 0.6 MGD.

(9) Parkins Mill STP: waste load allocations (WLAs) based on a design flow capacity of 5.0 million gallons per day (MGD). If plant is not certified to operate at 5.0 MGD design flow capacity by 12/31/10, the WLAs will decrease to TN = 36,547 lbs/yr; TP = 2,741 lbs/yr, based on a design flow capacity of 3.0 MGD.

9 VAC 25-720-60. James River Basin.

A. Total Maximum Daily Load (TMDLs).

TMDL #	Stream Name	TMDL Title	City/ County	WBID	Pollutant	WLA	Units
1.	Pheasanty Run	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Bath	I14R	Organic Solids	1,231.00	LB/YR
2.	Wallace Mill Stream	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Augusta	I32R	Organic Solids	2,814.00	LB/YR
3.	Montebello Spring Branch	Benthic TMDL Reports for Six Impaired Stream Segments in the Potomac-Shenandoah and James River Basins	Nelson	H09R	Organic Solids	37.00	LB/YR
4.	Unnamed Tributary to Deep Creek	General Standard Total Maximum Daily Load For Unnamed Tributary to Deep Creek	Nottoway	J11R	Raw Sewage	0	GAL/ YR
5.	Unnamed Tributary to Chickahominy River	Total Maxiumum Daily Load (TMDL) Development for the Unnamed Tributary to the Chickahominy River	Hanover	G05R	Total Phosphorus	409.35	LB/YR

B. Stream segment classifications, effluent limitations including water quality based effluent limitations, and waste load allocations.

TABLE B1 - UPPER JAMES RIVER BASIN RECOMMENDED SEGMENT CLASSIFICATION

Stream Name	Segment No.	Mile to Mile	Classification	Comments
Maury River	2-4	80.3-0.0	E.L.	Main & tributaries
James River	2-5	271.5-266.0	W.Q.	Main only
James River	2-6	266.0-115.0	E.L.	Main & tributaries except Tye & Rivanna River
Tye River	2-7	41.7-0.0	E.L.	Main & tributaries except Rutledge Creek
Rutledge Creek	2-8	3.0-0.0	W.Q.	Main only
Piney River	2-9	20.6-0.0	E.L.	Main & tributaries
Rivanna River	2-10	20.0-0.0	E.L.	Main & tributaries
Rivanna River	2-11	38.1-20.0	W.Q.	Main only
Rivanna River	2-12	76.7-38.1	E.L.	Main & tributaries
S.F. Rivanna River	2-13	12.2-0.0	E.L.	Main & tributaries
Mechum River	2-14	23.1-0.0	E.L.	Main & tributaries
N.F. Rivanna River	2-15	17.0-0.0	E.L.	Main & tributaries except Standardsville Run
Standardsville Run	2-16	1.2-0.0	W.Q.	Main only
Appomattox River	2-17	156.2-27.7	E.L.	Main & tributaries except Buffalo Creek, Courthouse Branch, and Deep Creek
Buffalo Creek	2-18	20.9-0.0	E.L.	Main & tributaries except Unnamed Tributary @ R.M. 9.3
Unnamed Tributary of Buffalo Creek @ R.M. 9.3	2-19	1.3-0.0	W.Q.	Main only
Courthouse Branch	2-20	0.6-0.0	W.Q.	Main only
Deep Creek	2-21	29.5-0.0	E.L.	Main & tributaries except Unnamed Tributary @ R.M. 25.0
Unnamed Tributary of Deep Creek @ R.M. 25.0	2-22	2.2-0.0	W.Q.	Main only

TABLE B2 - UPPER JAMES RIVER BASIN LOAD ALLOCATIONS BASED ON EXISTING DISCHARGE POINT[7]

Stream Name	Segment Number	Classification	Mile to Mile	Significant Discharges	Total Assimilative Capacity of Stream BOD_5 lbs/day	Wasteload Allocation BOD_5 lbs/day[2]	Reserve BOD_5 lbs/day[5]
Cedar Creek	2-3	E.L.	1.9-0.0	Natural Bridge, Inc. STP	35.0	28.0	7.0 (20%)
Elk Creek	2-3	E.L.	2.8-0.0	Natural Bridge Camp for Boys STP	7.0	3.3	3.7 (53%)
Little Calfpasture River	2-4	E.L.	10.9-4.0	Craigsville	12.0	9.6	2.4 (20%)
Cabin River	2-4	E.L.	1.7-0.0	Millboro	Self -sustaining	None	None
Maury River	2-4	E.L.	19.6-12.2	Lexington STP	380.0	380.0	None
Maury River	2-4	E.L.	12.2-1.2	Georgia Bonded Fibers	760.0	102.0[3]	238.0 (31%)
				Buena Vista STP		420.0	

Back Creek	2-1	16.06-8.46	W.Q.	Main Only
Jackson River	2-1	95.70-24.90	E.L.	Main and Tributaries
Jackson River	2-2	24.90-0.00	W.Q.	Main Only
Jackson River	2-2	24.90-0.00	E.L.	Tributaries Only
James River	2-3	349.50-308.50	E.L.	Main and Tributaries
James River	2-3	308.50-279.41	E.L.	Main and Tributaries

TABLE B5 - UPPER JAMES-JACKSON RIVER SUBAREA WASTELOAD ALLOCATIONS BASED ON EXISTING DISCHARGE POINT[1]

MAP LOCATION	STREAM NAME	SEGMENT NUMBER	SEGMENT CLASSIFICATION STANDARDS	MILE to[2] MILE	DISCHARGER	VPDES PERMIT NUMBER	VPDES PERMIT LIMITS BOD_5 kg/day	303(e)[3] WASTELOAD ALLOCATION BOD_5 kg/day
1	Jackson River	2-1	E.L.	93.05-	Virginia Trout	VA0071722	N/A	Secondary
B	Warm Springs Run	2-1	E.L.	3.62-0.00	Warm Springs STP	VA0028233	9.10	Secondary
3	Back Creek	2-1	W.Q.	16.06-8.46	VEPCO	VA0053317	11.50	11.50
C	X-trib to Jackson River	2-1	E.L.	0.40-0.0	Bacova	VA0024091	9.10	Secondary
D	Hot Springs Run	2-1	E.L.	5.30-0.00	Hot Springs Reg. STP	VA0066303	51.10	Secondary
E	X-trib to Cascades Creek	2-1	E.L.	3.00-0.00	Ashwood-Healing Springs STP	VA0023726	11.30	Secondary
F	Jackson River	2-1	E.L.	50.36-	U.S. Forest Service Bolar Mountain	VA0032123	1.98	Secondary
G	Jackson River	2-1	E.L.	43.55	U.S. Army COE Morris Hill Complex	VA0032115	1.70	Secondary
H	Jackson River	2-1	E.L.	29.84-	Alleghany County Clearwater Park	VA0027955	5.70	Secondary
4	Jackson River	2-1	E.L.	25.99	Covington City Water Treatment Plant	VA0058491	N/A	Secondary
5	Jackson River	2-2	W.Q.	24.64-19.03	Westvaco	VA0003646	4,195.00	4,195.00[4]
6					Covington City [5] Asphalt Plant	VA0054411	N/A	N/A
7					Hercules, Inc [6]	VA0003450	94.00	94.00

Attachment F

Wasteload and Limit Calculations

- Mixing Zone Calculations (MIXER 2.1)
- Effluent Data
- Antidegradation Wasteload Allocation Spreadsheet
- STATS Program Results (ammonia, TRC)

Mixing Zone Predictions for Morris Hill WWTP

Effluent Flow = 0.015 MGD
Stream 7Q10 = 91.9 MGD
Stream 30Q10 = 91.0 MGD
Stream 1Q10 = 91.9 MGD
Stream slope = 0.008 ft/ft
Stream width = 175 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .79 ft
Length = 35376.16 ft
Velocity = 1.0292 ft/sec
Residence Time = .3978 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .7853 ft
Length = 35555.02 ft
Velocity = 1.0252 ft/sec
Residence Time = .4014 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .79 ft
Length = 35376.16 ft
Velocity = 1.0292 ft/sec
Residence Time = 9.5482 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 10.47% of the 1Q10 is used.

Morris Hill WWTP
VA0032115

Effluent Temperature Data (°C)

	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Dec-07	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Jan-08
1																
2																
3																
4																
5																
6													24.0			
7																
8				25.0								23.1				
9														22.9		
10																
11																
12							7.4									
13								10.0			20.9					
14		20.2								17.9						
15																
16																
17												22.2				
18											21.3		23.9			
19										18.2						
20		20.4		24.8	21.6	7.7										
21																
22															16.9	
23																
24																
25																
26																
27																
28									15.5							4.1
29																
30	19.1		23.6													
31																

90th Percentile Temperature 24.0 °C
90th Percentile Temperature 18.5 °C December - May

Morris Hill WWTP (VA0032115)

Effluent pH (S.U.)

Date Due	min	max
10-Nov-04	6.8	6.8
10-Jan-05	6.8	6.8
10-Feb-05	6.9	6.9
10-Mar-05	7.1	7.1
10-Apr-05	7	7.1
10-May-05	6.8	6.9
10-Jun-05	6.8	6.9
10-Jul-05	7	7.2
10-Aug-05	7	7.2
10-Sep-05	7.1	7.2
10-Oct-05	6.8	6.9
10-Feb-06	7.1	7.2
10-Mar-06	7.2	7.2
10-Apr-06	7.3	7.3
10-May-06	7.1	7.3
10-Jun-06	7.1	7.3
10-Jul-06	7.2	7.3
10-Aug-06	6.8	7.2
10-Sep-06	7.2	7.3
10-Oct-06	7.2	7.2
10-Nov-06	7.2	7.2
10-Dec-06	7	7
10-Jan-07	6.8	6.9
10-Feb-07	6.9	6.9
10-Mar-07	7.2	7.2
10-Apr-07	6.7	6.7
10-May-07	7.3	7.3
10-Jun-07	6.7	6.8
10-Jul-07	6.8	6.9
10-Aug-07	6.7	6.8
10-Sep-07	6.5	6.6
10-Oct-07	6.6	6.6
10-Nov-07	7	7
10-Jan-08	7.1	7.1
10-Feb-08	7.2	7.2
10-Mar-08	7.2	7.2
10-Apr-08	6.9	6.9
10-May-08	7.3	7.3
10-Jun-08	7.1	7.2
10-Jul-08	7	7.1
10-Aug-08	7.2	7.4
10-Sep-08	6.8	6.9
10-Oct-08	6.9	6.9
10-Nov-08	7.2	7.2
10-Feb-09	7.3	7.3
10-Mar-09	7.3	7.3

90th Percentile pH	7.3	S.U.
10th Percentile pH	6.8	S.U.

Morris Hill STP
VPDES Permit No. VA0032115

pH Data

Date DMR Due	pH, min S.U.	H ion conc	pH, max S.U.	H ion conc
10-Feb-06	7.1	7.943E-08	7.2	6.310E-08
10-Mar-06	7.2	6.310E-08	7.2	6.310E-08
10-Apr-06	7.3	5.012E-08	7.3	5.012E-08
10-May-06	7.1	7.943E-08	7.3	5.012E-08
10-Jun-06	7.1	7.943E-08	7.3	5.012E-08
10-Jul-06	7.2	6.310E-08	7.3	5.012E-08
10-Aug-06	6.8	1.585E-07	7.2	6.310E-08
10-Sep-06	7.2	6.310E-08	7.3	5.012E-08
10-Oct-06	7.2	6.310E-08	7.2	6.310E-08
10-Nov-06	7.2	6.310E-08	7.2	6.310E-08
10-Dec-06	7	1.000E-07	7	1.000E-07
10-Jan-07	6.8	1.585E-07	6.9	1.259E-07
10-Feb-07	6.9	1.259E-07	6.9	1.259E-07
10-Mar-07	7.2	6.310E-08	7.2	6.310E-08
10-Apr-07	6.7	1.995E-07	6.7	1.995E-07
10-May-07	7.3	5.012E-08	7.3	5.012E-08
10-Jun-07	6.7	1.995E-07	6.8	1.585E-07
10-Jul-07	6.8	1.585E-07	6.9	1.259E-07
10-Aug-07	6.7	1.995E-07	6.8	1.585E-07
10-Sep-07	**6.5**	3.162E-07	6.6	2.512E-07
10-Oct-07	6.6	2.512E-07	6.6	2.512E-07
10-Nov-07	7	1.000E-07	7	1.000E-07
10-Jan-08	7.1	7.943E-08	7.1	7.943E-08
10-Feb-08	7.2	6.310E-08	7.2	6.310E-08
10-Mar-08	7.2	6.310E-08	7.2	6.310E-08
10-Apr-08	6.9	1.259E-07	6.9	1.259E-07
10-May-08	7.3	5.012E-08	7.3	5.012E-08
10-Jun-08	7.1	7.943E-08	7.2	6.310E-08
10-Jul-08	7	1.000E-07	7.1	7.943E-08
10-Aug-08	7.2	6.310E-08	7.4	3.981E-08
10-Sep-08	6.8	1.585E-07	6.9	1.259E-07
10-Oct-08	6.9	1.259E-07	6.9	1.259E-07
10-Nov-08	7.2	6.310E-08	7.2	6.310E-08
10-Feb-09	7.3	5.012E-08	7.3	5.012E-08
10-Mar-09	7.3	5.012E-08	7.3	5.012E-08
mean	6.99	1.015E-07	7.06	8.797E-08
maximum			7.40	
minimum	6.50			
permit limit	6.0	1.000E-06	9.0	1.000E-09

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Morris Hill WWTP Permit No.: VA0032115

Receiving Stream: Jackson River

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	82	mg/L
90% Temperature (Annual) =	17.5	deg C
90% Temperature (Wet season) =	13.3	deg C
90% Maximum pH =	8.3	SU
10% Maximum pH =	7.3	SU
Tier Designation (1 or 2) =	2	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	y	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	91.9	MGD
7Q10 (Annual) =	91.9	MGD
30Q10 (Annual) =	91	MGD
1Q10 (Wet season) =	90.4	MGD
30Q10 (Wet season)	85.8	MGD
30Q5 =	90	MGD
Harmonic Mean =	70.8	MGD
Annual Average =		MGD

Mixing Information

Annual - 1Q10 Mix =	10.47	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	82	mg/L
90% Temp (Annual) =	24	deg C
90% Temp (Wet season) =	18.5	deg C
90% Maximum pH =	7.3	SU
10% Maximum pH =	6.8	SU
Discharge Flow =	0.015	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	2.7E+03	--	--	na	1.6E+07	--	--	na	2.7E+02	--	--	na	1.6E+06	--	--	na	1.6E+06
Acrolein	0	--	--	na	7.8E+02	--	--	na	4.7E+06	--	--	na	7.8E+01	--	--	na	4.7E+05	--	--	na	4.7E+05
Acrylonitrile [C]	0	--	--	na	6.6E+00	--	--	na	3.1E+04	--	--	na	6.6E-01	--	--	na	3.1E+03	--	--	na	3.1E+03
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	1.9E+03	--	na	6.6E+00	7.5E-01	--	na	1.4E-04	4.6E+03	--	na	6.6E-01	1.9E+03	--	na	6.6E-01
Ammonia-N (mg/l) (Yearly)	0.044508	3.19E+00	1.26E+00	na	--	2.0E+03	7.4E+03	na	--	8.22E-01	3.48E-01	na	--	4.8E+03	1.8E+03	na	--	2.0E+03	1.8E+03	na	--
Ammonia-N (mg/l) (High Flow)	0.044508	3.15E+00	1.53E+00	na	--	1.9E+04	8.5E+03	na	--	8.22E-01	4.15E-01	na	--	4.7E+03	2.1E+03	na	--	4.7E+03	2.1E+03	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	6.6E+08	--	--	na	1.1E+04	--	--	na	6.6E+07	--	--	na	6.6E+07
Antimony	0	--	--	na	4.3E+03	--	--	na	2.6E+07	--	--	na	4.3E+02	--	--	na	2.6E+06	--	--	na	2.6E+06
Arsenic	0.64	3.4E+02	1.5E+02	na	--	2.2E+05	9.2E+05	na	--	8.5E+01	3.8E+01	na	--	5.2E+05	2.3E+05	na	--	2.2E+05	2.3E+05	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	3.4E+06	--	--	na	7.1E+01	--	--	na	3.4E+05	--	--	na	3.4E+05
Benzidine [C]	0	--	--	na	5.4E-03	--	--	na	2.5E+01	--	--	na	5.4E-04	--	--	na	2.5E+00	--	--	na	2.5E+00
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	8.4E+04	--	--	na	1.4E+00	--	--	na	8.4E+03	--	--	na	8.4E+03
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.0E+09	--	--	na	1.7E+04	--	--	na	1.0E+08	--	--	na	1.0E+08
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	1.7E+07	--	--	na	3.6E+02	--	--	na	1.7E+06	--	--	na	1.7E+06
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	3.1E+07	--	--	na	5.2E+02	--	--	na	3.1E+06	--	--	na	3.1E+06
Cadmium	0.26	3.1E+00	9.7E-01	na	--	1.8E+03	4.4E+03	na	--	9.8E-01	4.4E-01	na	--	4.4E+03	1.1E+03	na	--	1.8E+03	1.1E+03	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	2.1E+05	--	--	na	4.4E+00	--	--	na	2.1E+04	--	--	na	2.1E+04
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	1.5E+03	2.6E+01	na	1.0E+02	6.0E-01	1.1E-03	na	2.2E-03	3.7E+03	6.6E+00	na	1.0E+01	1.5E+03	6.6E+00	na	1.0E+01
Chloride	47952.27	8.6E+05	2.3E+05	na	--	5.2E+08	1.1E+09	na	--	2.5E+05	9.3E+04	na	--	1.2E+09	2.8E+08	na	--	5.2E+08	2.8E+08	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.2E+04	6.7E+04	na	--	4.8E+00	2.8E+00	na	--	2.9E+04	1.7E+04	na	--	1.2E+04	1.7E+04	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	1.3E+08	--	--	na	2.1E+03	--	--	na	1.3E+07	--	--	na	1.3E+07

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	3.4E+02	--	--	na	1.6E+06	--	--	na	3.4E+01	--	--	na	1.6E+05	--	--	na	1.6E+05
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	1.4E+08	--	--	na	2.9E+03	--	--	na	1.4E+07	--	--	na	1.4E+07
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	2.6E+07	--	--	na	4.3E+02	--	--	na	2.6E+06	--	--	na	2.6E+06
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	2.4E+06	--	--	na	4.0E+01	--	--	na	2.4E+05	--	--	na	2.4E+05
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	5.3E+01	2.5E+02	na	--	2.1E-02	1.0E-02	na	--	1.3E+02	6.3E+01	na	--	5.3E+01	6.3E+01	na	--
Chromium III	0	4.8E+02	6.3E+01	na	--	3.1E+05	3.9E+05	na	--	1.2E+02	1.6E+01	na	--	7.4E+05	9.7E+04	na	--	3.1E+05	9.7E+04	na	--
Chromium VI	0.29	1.6E+01	1.1E+01	na	--	1.0E+04	6.6E+04	na	--	4.2E+00	3.0E+00	na	--	2.4E+04	1.6E+04	na	--	1.0E+04	1.6E+04	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Copper	2.52	1.1E+01	7.6E+00	na	--	5.5E+03	3.1E+04	na	--	4.7E+00	3.8E+00	na	--	1.3E+04	7.7E+03	na	--	5.5E+03	7.7E+03	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	1.4E+04	3.2E+04	na	1.3E+09	5.5E+00	1.3E+00	na	2.2E+04	3.4E+04	8.0E+03	na	1.3E+08	1.4E+04	8.0E+03	na	1.3E+08
DDD [C]	0	--	--	na	8.4E-03	--	--	na	4.0E+01	--	--	na	8.4E-04	--	--	na	4.0E+00	--	--	na	4.0E+00
DDE [C]	0	--	--	na	5.9E-03	--	--	na	2.8E+01	--	--	na	5.9E-04	--	--	na	2.8E+00	--	--	na	2.8E+00
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	7.1E+02	6.1E+00	na	2.8E+01	2.8E-01	2.5E-04	na	5.9E-04	1.7E+03	1.5E+00	na	2.8E+00	7.1E+02	1.5E+00	na	2.8E+00
Demeton	0	--	1.0E-01	na	--	--	6.1E+02	na	--	--	2.5E-02	na	--	--	1.5E+02	na	--	--	1.5E+02	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	7.2E+07	--	--	na	1.2E+03	--	--	na	7.2E+06	--	--	na	7.2E+06
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	7.6E+07	--	--	na	1.6E+03	--	--	na	7.6E+06	--	--	na	7.6E+06
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.0E+08	--	--	na	1.7E+03	--	--	na	1.0E+07	--	--	na	1.0E+07
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	1.6E+07	--	--	na	2.6E+02	--	--	na	1.6E+06	--	--	na	1.6E+06
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	1.6E+07	--	--	na	2.6E+02	--	--	na	1.6E+06	--	--	na	1.6E+06
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	3.6E+03	--	--	na	7.7E-02	--	--	na	3.6E+02	--	--	na	3.6E+02
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	2.2E+06	--	--	na	4.6E+01	--	--	na	2.2E+05	--	--	na	2.2E+05
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	4.7E+06	--	--	na	9.9E+01	--	--	na	4.7E+05	--	--	na	4.7E+05
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.0E+08	--	--	na	1.7E+03	--	--	na	1.0E+07	--	--	na	1.0E+07
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	8.4E+08	--	--	na	1.4E+04	--	--	na	8.4E+07	--	--	na	8.4E+07
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	4.7E+06	--	--	na	7.9E+01	--	--	na	4.7E+05	--	--	na	4.7E+05
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	1.8E+06	--	--	na	3.9E+01	--	--	na	1.8E+05	--	--	na	1.8E+05
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.0E+07	--	--	na	1.7E+02	--	--	na	1.0E+06	--	--	na	1.0E+06
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	1.5E+02	3.4E+02	na	6.6E+00	6.0E-02	1.4E-02	na	1.4E-04	3.7E+02	8.6E+01	na	6.6E-01	1.5E+02	8.6E+01	na	6.6E-01
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	7.2E+08	--	--	na	1.2E+04	--	--	na	7.2E+07	--	--	na	7.2E+07
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	2.8E+05	--	--	na	5.9E+00	--	--	na	2.8E+04	--	--	na	2.8E+04
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	1.4E+07	--	--	na	2.3E+02	--	--	na	1.4E+06	--	--	na	1.4E+06
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	1.7E+10	--	--	na	2.9E+05	--	--	na	1.7E+09	--	--	na	1.7E+09
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	7.2E+07	--	--	na	1.2E+03	--	--	na	7.2E+06	--	--	na	7.2E+06
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	8.4E+07	--	--	na	1.4E+03	--	--	na	8.4E+06	--	--	na	8.4E+06
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	4.6E+06	--	--	na	7.7E+01	--	--	na	4.6E+05	--	--	na	4.6E+05
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	4.3E+05	--	--	na	9.1E+00	--	--	na	4.3E+04	--	--	na	4.3E+04
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	na	1.2E-07	--	--	na	1.2E-07	--	--	na	na
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	2.5E+04	--	--	na	5.4E-01	--	--	na	2.5E+03	--	--	na	2.5E+03
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	1.4E+02	3.4E+02	na	1.4E+06	5.5E-02	1.4E-02	na	2.4E+01	3.4E+02	8.6E+01	na	1.4E+05	1.4E+02	8.6E+01	na	1.4E+05
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	1.4E+02	3.4E+02	na	1.4E+06	5.5E-02	1.4E-02	na	2.4E+01	3.4E+02	8.6E+01	na	1.4E+05	1.4E+02	8.6E+01	na	1.4E+05
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	1.4E+06	--	--	na	2.4E+01	--	--	na	1.4E+05	--	--	na	1.4E+05
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	5.5E+01	2.2E+02	na	4.9E+03	2.2E-02	9.0E-03	na	8.1E-02	1.3E+02	5.5E+01	na	4.9E+02	5.5E+01	5.5E+01	na	4.9E+02
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	4.9E+03	--	--	na	8.1E-02	--	--	na	4.9E+02	--	--	na	4.9E+02

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	1.7E+08	--	--	na	2.9E+03	--	--	na	1.7E+07	--	--	na	1.7E+07
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	2.2E+06	--	--	na	3.7E+01	--	--	na	2.2E+05	--	--	na	2.2E+05
Fluorene	0	--	--	na	1.4E+04	--	--	na	8.4E+07	--	--	na	1.4E+03	--	--	na	8.4E+06	--	--	na	8.4E+06
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	6.1E+01	na	--	--	2.5E-03	na	--	--	1.5E+01	na	--	--	1.5E+01	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	2.1E-03	3.3E+02	2.3E+01	na	9.9E+00	1.3E-01	9.5E-04	na	2.1E-04	8.0E+02	5.8E+00	na	9.9E-01	3.3E+02	5.8E+00	na	9.9E-01
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	1.1E-03	3.3E+02	2.3E+01	na	5.2E+00	1.3E-01	9.5E-04	na	1.1E-04	8.0E+02	5.8E+00	na	5.2E-01	3.3E+02	5.8E+00	na	5.2E-01
Hexachlorobenzene[C]	0	--	--	na	7.7E-03	--	--	na	3.6E+01	--	--	na	7.7E-04	--	--	na	3.6E+00	--	--	na	3.6E+00
Hexachlorobutadiene[C]	0	--	--	na	5.0E+02	--	--	na	2.4E+06	--	--	na	5.0E+01	--	--	na	2.4E+05	--	--	na	2.4E+05
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	1.3E-01	--	--	na	6.1E+02	--	--	na	1.3E-02	--	--	na	6.1E+01	--	--	na	6.1E+01
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	4.6E-01	--	--	na	2.2E+03	--	--	na	4.6E-02	--	--	na	2.2E+02	--	--	na	2.2E+02
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	6.3E-01	6.1E+02	--	na	3.0E+03	2.4E-01	--	na	6.3E-02	1.5E+03	--	na	3.0E+02	6.1E+02	--	na	3.0E+02
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.0E+08	--	--	na	1.7E+03	--	--	na	1.0E+07	--	--	na	1.0E+07
Hexachloroethane[C]	0	--	--	na	8.9E+01	--	--	na	4.2E+05	--	--	na	8.9E+00	--	--	na	4.2E+04	--	--	na	4.2E+04
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	1.2E+04	na	--	--	5.0E-01	na	--	--	3.1E+03	na	--	--	3.1E+03	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	2.3E+03	--	--	na	4.9E-02	--	--	na	2.3E+02	--	--	na	2.3E+02
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone[C]	0	--	--	na	2.6E+04	--	--	na	1.2E+08	--	--	na	2.6E+03	--	--	na	1.2E+07	--	--	na	1.2E+07
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	2.09	9.2E+01	1.0E+01	na	--	5.8E+04	5.1E+04	na	--	2.5E+01	4.2E+00	na	--	1.4E+05	1.3E+04	na	--	5.8E+04	1.3E+04	na	--
Malathion	0	--	1.0E-01	na	--	--	6.1E+02	na	--	--	2.5E-02	na	--	--	1.5E+02	na	--	--	1.5E+02	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0.081	1.4E+00	7.7E-01	na	5.1E-02	8.5E+02	4.2E+03	na	-1.8E+02	4.1E-01	2.5E-01	na	7.8E-02	2.0E+03	1.1E+03	na	-1.8E+01	8.5E+02	1.1E+03	na	-1.8E+02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	2.4E+07	--	--	na	4.0E+02	--	--	na	2.4E+06	--	--	na	2.4E+06
Methoxychlor	0	--	3.0E-02	na	--	--	1.8E+02	na	--	--	7.5E-03	na	--	--	4.6E+01	na	--	--	4.6E+01	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	1.3E+08	--	--	na	2.1E+03	--	--	na	1.3E+07	--	--	na	1.3E+07
Nickel	4.77	1.5E+02	1.7E+01	na	4.6E+03	9.6E+04	7.6E+04	na	2.8E+07	4.2E+01	7.9E+00	na	4.6E+02	2.3E+05	1.9E+04	na	2.8E+06	9.6E+04	1.9E+04	na	2.8E+06
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.1E+07	--	--	na	1.9E+02	--	--	na	1.1E+06	--	--	na	1.1E+06
N-Nitrosodimethylamine[C]	0	--	--	na	8.1E+01	--	--	na	3.8E+05	--	--	na	8.1E+00	--	--	na	3.8E+04	--	--	na	3.8E+04
N-Nitrosodiphenylamine[C]	0	--	--	na	1.6E+02	--	--	na	7.6E+05	--	--	na	1.6E+01	--	--	na	7.6E+04	--	--	na	7.6E+04
N-Nitrosodi-n-propylamine[C]	0	--	--	na	1.4E+01	--	--	na	6.6E+04	--	--	na	1.4E+00	--	--	na	6.6E+03	--	--	na	6.6E+03
Parathion	0	6.5E-02	1.3E-02	na	--	4.2E+01	8.0E+01	na	--	1.6E-02	3.3E-03	na	--	1.0E+02	2.0E+01	na	--	4.2E+01	2.0E+01	na	--
PCB-1016	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1221	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1232	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1242	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1248	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1254	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB-1260	0	--	1.4E-02	na	--	--	8.6E+01	na	--	--	3.5E-03	na	--	--	2.1E+01	na	--	--	2.1E+01	na	--
PCB Total[C]	0	--	--	na	1.7E-03	--	--	na	8.0E+00	--	--	na	1.7E-04	--	--	na	8.0E-01	--	--	na	8.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol [C]	0	1.2E+01	9.0E+00	na	8.2E+01	7.6E+03	5.5E+04	na	3.9E+05	2.9E+00	2.3E+00	na	8.2E+00	1.8E+04	1.4E+04	na	3.9E+04	7.6E+03	1.4E+04	na	3.9E+04
Phenol	0	--	--	na	4.6E+06	--	--	na	2.8E+10	--	--	na	4.6E+05	--	--	na	2.8E+09	--	--	na	2.8E+09
Pyrene	0	--	--	na	1.1E+04	--	--	na	6.6E+07	--	--	na	1.1E+03	--	--	na	6.6E+06	--	--	na	6.6E+06
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	9.0E+04	--	--	na	1.5E+00	--	--	na	9.0E+03	--	--	na	9.0E+03
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	2.4E+04	--	--	na	4.0E-01	--	--	na	2.4E+03	--	--	na	2.4E+03
Strontium-90	0	--	--	na	8.0E+00	--	--	na	4.8E+04	--	--	na	8.0E-01	--	--	na	4.8E+03	--	--	na	4.8E+03
Tritium	0	--	--	na	2.0E+04	--	--	na	1.2E+08	--	--	na	2.0E+03	--	--	na	1.2E+07	--	--	na	1.2E+07
Selenium	0.828	2.0E+01	5.0E+00	na	1.1E+04	1.2E+04	2.6E+04	na	6.6E+07	5.6E+00	1.9E+00	na	1.1E+03	2.9E+04	6.4E+03	na	6.6E+06	1.2E+04	6.4E+03	na	6.6E+06
Silver	1.103	2.5E+00	--	na	--	8.7E+02	--	na	--	1.4E+00	--	na	--	2.1E+03	--	na	--	8.7E+02	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,1,2,2-Tetrachloroethane [C]	0	--	--	na	1.1E+02	--	--	na	5.2E+05	--	--	na	1.1E+01	--	--	na	5.2E+04	--	--	na	5.2E+04
Tetrachloroethylene [C]	0	--	--	na	8.9E+01	--	--	na	4.2E+05	--	--	na	8.9E+00	--	--	na	4.2E+04	--	--	na	4.2E+04
Thallium	0	--	--	na	6.3E+00	--	--	na	3.8E+04	--	--	na	6.3E-01	--	--	na	3.8E+03	--	--	na	3.8E+03
Toluene	0	--	--	na	2.0E+05	--	--	na	1.2E+09	--	--	na	2.0E+04	--	--	na	1.2E+08	--	--	na	1.2E+08
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	4.7E+02	1.2E+00	na	3.5E+01	1.8E-01	5.0E-05	na	7.5E-04	1.1E+03	3.1E-01	na	3.5E+00	4.7E+02	3.1E-01	na	3.5E+00
Tributyltin	0	4.6E-01	6.3E-02	na	--	3.0E+02	3.9E+02	na	--	1.2E-01	1.6E-02	na	--	7.0E+02	9.7E+01	na	--	3.0E+02	9.7E+01	na	--
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	5.6E+06	--	--	na	9.4E+01	--	--	na	5.6E+05	--	--	na	5.6E+05
1,1,2-Trichloroethane [C]	0	--	--	na	4.2E+02	--	--	na	2.0E+06	--	--	na	4.2E+01	--	--	na	2.0E+05	--	--	na	2.0E+05
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	3.8E+06	--	--	na	8.1E+01	--	--	na	3.8E+05	--	--	na	3.8E+05
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	3.1E+05	--	--	na	6.5E+00	--	--	na	3.1E+04	--	--	na	3.1E+04
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Vinyl Chloride [C]	0	--	--	na	6.1E+01	--	--	na	2.9E+05	--	--	na	6.1E+00	--	--	na	2.9E+04	--	--	na	2.9E+04
Zinc	19.31	9.9E+01	1.0E+02	na	6.9E+04	5.1E+04	4.9E+05	na	4.1E+08	3.9E+01	3.9E+01	na	6.9E+03	1.2E+05	1.2E+05	na	4.1E+07	5.1E+04	1.2E+05	na	4.1E+07

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	2.6E+06
Arsenic	8.7E+04
Barium	na
Cadmium	6.5E+02
Chromium III	5.8E+04
Chromium VI	4.0E+03
Copper	2.2E+03
Iron	na
Lead	7.7E+03
Manganese	na
Mercury	-1.8E+02
Nickel	1.1E+04
Selenium	3.8E+03
Silver	3.5E+02
Zinc	2.0E+04

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.015 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD 0.015

	Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	9.622	90.400	9.637	90.415
7Q10	91.900	N/A	91.915	N/A
30Q10	91.000	85.800	91.015	85.815
30Q5	90.000	N/A	90.015	N/A
Harm. Mean	70.800	N/A	70.815	N/A
Annual Avg.	0.000	N/A	0.015	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	17.510	13.301
30Q10 90th% Temp. Mix (deg C)	17.501	13.301
1Q10 90th% pH Mix (SU)	8.294	8.299
30Q10 90th% pH Mix (SU)	8.299	8.299
1Q10 10th% pH Mix (SU)	7.299	N/A
7Q10 10th% pH Mix (SU)	7.300	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3)	82.0	82.0
7Q10 Hardness (mg/L as CaCO3)	82.0	82.0

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.294
(7.204 - pH)	-1.090
(pH - 7.204)	1.090
Trout Present Criterion (mg N/l	3.186
Trout Absent Criterion (mg N/L	4.771
Trout Present?	y
Effective Criterion (mg N/L)	3.186

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	17.501
90th Percentile pH (SU)	8.299
MIN	2.351
MAX	17.501
(7.688 - pH)	-0.611
(pH - 7.688)	0.611
Early LS Present Criterion (mg N	1.259
Early LS Absent Criterion (mg N/	1.259
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.259

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.299
(7.204 - pH)	-1.095
(pH - 7.204)	1.095
Trout Present Criterion (mg N/l	3.153
Trout Absent Criterion (mg N/L	4.721
Trout Present?	y
Effective Criterion (mg N/L)	3.153

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.301
90th Percentile pH (SU)	8.299
MIN	2.850
MAX	13.301
(7.688 - pH)	-0.611
(pH - 7.688)	0.611
Early LS Present Criterion (mg N	1.526
Early LS Absent Criterion (mg N/	1.650
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.526

0.015 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD 0.015

	100% Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	91.900	90.400	91.915	90.415
7Q10	91.900	N/A	91.915	N/A
30Q10	91.000	85.800	91.015	85.815
30Q5	90.000	N/A	90.015	N/A
Harm. Mean	70.800	N/A	70.815	N/A
Annual Avg.	0.000	N/A	0.015	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	17.501	13.301
30Q10 90th% Temp. Mix (deg C)	17.501	13.301
1Q10 90th% pH Mix (SU)	8.299	8.299
30Q10 90th% pH Mix (SU)	8.299	8.299
1Q10 10th% pH Mix (SU)	7.300	N/A
7Q10 10th% pH Mix (SU)	7.300	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3) =	82.000	82.000
7Q10 Hardness (mg/L as CaCO3) =	82.000	82.000

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	8.299
(7.204 - pH)	-1.095
(pH - 7.204)	1.095
Trout Present Criterion (mg N/l	3.153
Trout Absent Criterion (mg N/L	4.721
Trout Present?	y
Effective Criterion (mg N/L)	3.153

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	17.501
90th Percentile pH (SU)	8.299
MIN	2.351
MAX	17.501
(7.688 - pH)	-0.611
(pH - 7.688)	0.611
Early LS Present Criterion (mg N	1.259
Early LS Absent Criterion (mg N/	1.259
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.259

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	8.299
(7.204 - pH)	-1.095
(pH - 7.204)	1.095
Trout Present Criterion (mg N/l	3.153
Trout Absent Criterion (mg N/L	4.721
Trout Present?	y
Effective Criterion (mg N/L)	3.153

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.301
90th Percentile pH (SU)	8.299
MIN	2.850
MAX	13.301
(7.688 - pH)	-0.611
(pH - 7.688)	0.611
Early LS Present Criterion (mg N	1.526
Early LS Absent Criterion (mg N/	1.650
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.526

3/19/2009 9:02:17 AM

Facility = Morris Hill WWTP
Chemical = ammonia as N (mg/L)
Chronic averaging period = 30
WLAa = 2300
WLAc = 1800
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

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3/19/2009 9:03:30 AM

Facility = Morris Hill WWTP
Chemical = TRC (mg/L)
Chronic averaging period = 4
WLAa = 4
WLAc = 4
Q.L. = 0.1
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 4
Average Weekly limit = 2.38602034360889
Average Monthly LImit = 1.98248465547071

The data are:

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Attachment G

Justification for Reduced Monitoring Frequency Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office

3019 Peters Creek Road Roanoke, VA 24019

SUBJECT: Justification for Reduced Monitoring Frequency
Reissuance of VPDES Permit No. VA0032115
Morris Hill STP

TO: Permit File

FROM: Becky L. France, Environmental Engineer Senior BLF

DATE: April 13, 2009 (4/29/09)

Compliance History

The VPDES Permit Manual recommends effluent monitoring frequencies. In the previous permit term, the treatment facility qualified for reduced monitoring frequencies. Guidance Memorandum 98-2005 allows for reduced monitoring at facilities with excellent compliance histories. During the 2004 to 2009 permit term the facility permit contained reduced monitoring frequencies for pH, DO, TSS and BOD_5. For this reissuance, the eligibility for continued reduced monitoring has been evaluated.

To qualify for consideration of reduced monitoring, the facility should not have been issued any Letter of Noncompliance (LON), Notice of Violation (NOV), Warning Letter, or Notice of Unsatisfactory Laboratory Evaluations, or be under any Consent Orders, Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years. Morris Hill STP received a laboratory evaluation deficiency letter for the April 1, 2008 inspection. As per the DEQ compliance inspection staff, the deficiencies identified in the laboratory inspection report were minor infractions that did not affect the quality of the data. Therefore, the facility qualifies for reduced monitoring.

Monitoring Data Evaluation

Discharge Monitoring Report (DMR) data from January 2006 through February 2009, were reviewed and tabulated in the attached tables. Dissolved oxygen, total suspended solids (TSS), and biochemical oxygen demand (BOD_5) have been considered for reduced monitoring. Total residual chlorine limits are not considered eligible for reduced monitoring to ensure protection of aquatic life and human health. The actual performance to permit limit ratios are summarized in the table that follows. Facilities with baseline monitoring that have an actual performance to permit limit ratio of greater than 75 percent are not eligible for reduced monitoring.

Table 1 **Performance to Permit Limit Ratios (DMR Data)**

Parameter	Actual Performance/ Permit Limit Monthly Average*	Actual Performance/ Permit Limit (Maximum)*	Reduced Monitoring
TSS	2.79%, 1.90%	17.67%, 11.78%	1/6 Months
BOD_5	0.007%, 0.005%	2.22%, 1.48%	1/6 Months

*The ratio based upon concentration is listed first, and the ratio based upon loading is listed second.

DO: None of the reported values was within 0.5 mg/L of the limit. Also, the average dissolved oxygen does not fall within 1.0 mg/L of the permit limit. For these reasons, the monitoring frequency for dissolved oxygen is 1/discharge-week and this frequency has been continued from the previous permit.

TSS and BOD_5: The DMR data are consistently well below the permit limits. According to Guidance Memorandum 98-2005, facilities with baseline monitoring that have an actual performance to permit limit ratio of less than 25 percent are eligible for a reduced monitoring frequency of 1/6 months. The monitoring frequency for TSS has been continued from the previous permit. The monitoring frequency for BOD_5 has been reduced from 1/3 months to 1/6 months.

The permit will contain a special condition that will revert the TSS and BOD_5 monitoring frequencies back to 1/month and the DO to 1/discharge-day if the permittee should be issued a LON, NOV, or Warning Letter, or be the subject of an active enforcement action.

Table 2 **DMR Data for Morris Hill STP**

Month	TSS				BOD_5			
	average kg/d	max kg/d	average mg/L	max mg/L	average kg/d	max kg/d	average mg/L	max mg/L
10-Jan-05					0.0781	0.078	8.6	8.6
10-Apr-05	0.0795	0.0795	7	7	0	0	0	0
10-Jul-05	0.1635	0.1635	12	12	0.3134	0.436	30	32
10-Oct-05	0.053	0.053	7	7	0.0757	0.076	10	10
10-Apr-06	0.0409	0.0409	6	6	0.0341	0.034	5	5
10-Jul-06	0.0273	0.0273	4	4	0.0613	0.061	9	9
10-Oct-06	0.0113	0.0113	2	2	0.0818	0.018	12	12
10-Jan-07	0.0409	0.0409	6	6	0.0113	0.011	0	0
10-Apr-07	0.0106	0.0106	2	2	0.1272	0.127	24	24
10-Jul-07	0.0136	0.0136	2	2	0.0818	0.082	12	12
10-Oct-07	0.0341	0.0341	5	5	0.0749	0.075	11	11
mean	0.04747	0.04747	5.30	5.30	0.0017	0.0017	0.67	0.67
maximum	0.1635	0.1635	12.0	12.0	0.3134	0.4360	30	32
minimum	0.0106	0.0106	2.0	2.0	<0.0015	<0.0015	<2	<2
permit limit	1.7	2.5	*30*	*45*	22.7	34.0	*30*	*45*
performance / permit limit) 100	2.79	1.90	17.67	11.78	0.007	0.005	2.22	1.48

	DO (mg/L)
Date DMR Due	**minimum mg/L**
10-Mar-06	8.7
10-May-06	10.4
10-Jun-06	10.2
10-Jul-06	10.2
10-Aug-06	10
10-Sep-06	9.8
10-Oct-06	8.4
10-Nov-06	8.3
10-Dec-06	7.4
10-Jan-07	7.4
10-Feb-07	7.8
10-Jun-07	10.3
10-Jul-07	11.4
10-Aug-07	11
10-Sep-07	9.9
10-Oct-07	8.5
10-Nov-07	7.9
10-Dec-07	7.4
10-Jan-08	7.7
10-Feb-08	7.9
10-Mar-08	8.2
10-Apr-08	8.4
10-May-08	11.2
10-Jun-08	10.9
10-Jul-08	11.4
10-Aug-08	11.4
10-Sep-08	10.2
10-Oct-08	8.4
10-Nov-08	8.2
10-Dec-08	7.7
10-Jan-09	7.5
10-Feb-09	7.9
10-Mar-09	8.1
mean	**9.1**
maximum	**11.4**
minimum	**7.4**
permit limit	**6.5**

Attachment H

Public Notice

PUBLIC NOTICE – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Alleghany County.
PUBLIC COMMENT PERIOD: 30 days following the public notice issue date; comment period ends 4:30 pm of last day
PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board
APPLICANT NAME, ADDRESS, AND PERMIT NUMBER: U.S. Army Corps of Engineers, PO Box 432, Covington, VA 24426-0432, VA0032115
FACILITY NAME AND LOCATION: Morris Hill STP, Coles Mountain Road (SR 605), south of Gathright Dam
PROJECT DESCRIPTION: Morris Hill STP has applied for a reissuance of a permit for the public wastewater treatment plant in Alleghany County. The applicant proposes to release treated sewage wastewater at a rate of 0.015 MGD from the current facility into a water body. The facility proposes to release the treated sewage into the Jackson River in the Jackson River/Falling Spring Creek Watershed (VAW-I0R). A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: organic matter, solids, toxic pollutants, dissolved oxygen
HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments by e-mail, fax, or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for a public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if a public response is significant and there are substantial, disputed issues relevant to the permit
CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION:
NAME: Becky L. France; ADDRESS: Virginia Department of Environmental Quality, Blue Ridge Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019-2738; PHONE: (540) 562-6700; E-MAIL ADDRESS: blfrance@deq.virginia.gov; FAX: (540) 562-6725. The public may review the draft permit and application at the DEQ office named above by appointment.

Attachment I

EPA Review Checksheet

Revised 2/2003

State "FY2003 Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Morris Hill WWTP

NPDES Permit Number: VA0032115

Permit Writer Name: Becky L. France

Date: 3/23/09

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		

I.B. Permit/Facility Characteristics – cont. (FY2003)	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?			X
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist (FY2003)

Region III NPDES Permit Quality Checklist – for POTWs

(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X

II.D. Water Quality-Based Effluent Limits – cont. (FY2003)	Yes	No	N/A
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			X
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont. (FY2003)	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?			X
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?			X
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions
Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset
Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part II. NPDES Draft Permit Checklist (FY2003)

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?			
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?			

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?			
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?			
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?			
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?			
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?			
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?			
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?			

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont.	Yes	No	N/A
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?			
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?			

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?			
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?			
3. Does the fact sheet provide effluent characteristics for each outfall?			
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?			
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?			
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?			
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?			
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?			
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?			
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?			
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?			
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?			

II.E. Monitoring and Reporting Requirements (FY2003)	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?			
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?			
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?			

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?			
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?			
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?			

List of Standard Conditions – 40 CFR 122.41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions

Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset

Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?			

Part III. Signature Page (FY2003)

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Becky L. France
Title	Environmental Engineer Senior
Signature	Becky L France
Date	3/23/09